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Arkansas Business and Economic Review

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An Economic Forecast for Arkansas Through 1987

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AN ECONOMIC FORECAST FOR ARKANSAS THROUGH 1987

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In July, as a part of its ongoing program to provide timely economic and business information to Arkansans, the Bureau mailed a questionnaire seeking clues as to what may be in Arkansas' economic future over the next year and a half. Recipients were 220 Arkansans whose jobs require them to be knowledgeable on economic events and trends at the state, regional, and national levels. Those surveyed composed a purposive sample which included businessmen, academics, and public officials. Seventy-three useable returns were obtained for a response rate of 33 percent which, without follow-up, is statistically acceptable. The cover letter and the questionnaire itself are included as Exhibit 1 and Exhibit 2 respectively.

In Exhibit 2, entered beside each subitem of items 1-15 and 17-20, is the percentage distribution of responses for the item. The three figures for each year shown in item 16, continuing economic recovery, are respectively 17 percent—those who felt there was less than a 50 percent chance that the recovery would extend through the '86 yearend, 83 percent—those who felt there was a better than even chance, and 15 percent—those who indicated it was a "sure" thing. In last year's survey the experts were less optimistic with respective values of 33, 67, and 0 percent.[1] Of course, the respondents to this year's survey have had the benefit of witnessing events of 1986 through or at least into July. Looking to the 1987 forecast, the respondents have a more cautious, less rosy view with their reported responses of 40, 60, and 2 percent respectively in the same three categories.

With item 16's responses depicting the nagging idea of "fragility" in the economy, it is not surprising that the forecast is short on clear consensuses. For example items 1 through 9 reflect some ambivalence although items 3, 5, and 8 do show simple majorities. Even so, the overall results point out the hopeful notion of "muddling through." For example, items 10, population growth; 11, farm cash receipts; and 12, personal income, show relatively small spreads among each item's percentage distribution.

Item 13, Dow Jones Industrial Average, reflects a bullish attitude is continuing with a majority, 57 percent, believing the index will exceed 1800 at the '86 yearend. Only a year ago as few as 2 percent thought the '86 average would exceed 1500. For 1987, 42 percent see the index above 1800 at yearend. Our experts in past forecasts have underestimated the Dow performance but caution may interject a question of overcompensating as 17 percent say the average will reach 2000 by the '87 yearend.

Item 14, influences on the economy, shows budget deficits closely followed by foreign competition as the principal problems with balance of trade deficits and interest rates also of substantial concern. Item 15, economic problems, indicates budget deficits and foreign competition are again primary problems. Item 17, reducing unemployment, has letting the price systems regulate the market and instituting tax credits as the two most often mentioned approaches with eliminating minimum wage legislation on teenagers a strong third choice.

Item 18, meeting education standards, suggests voluntary consolidations closely followed by raising millages and instituting a state lottery as the chief means for meeting the school standards. Item 19, federal tax reform, is expected to result primarily in reduced investment with more money in individuals' pockets. Item 20, economic development, holds that lower tax rates or accelerated depreciation would offer the best approaches while active promotion and briefing teams are also believed important means to achieve development. Responses to items 18, 19, and 20 included write-ins under the "others" subitem; but only one idea among the 60 recorded, was listed at least twice.

The overall forecast seems to stay on the "up" side but with little buoyancy as the economy continues to give out mixed signals. In this regard it fits well with Taylor's analysis of Arkansas Economic Indicators[2] and the Darden, Good, and Dorsch findings based on Arkansas Household Research Panel reports.[3]

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[1] Harry French and Betty Weeks, "An Economic Forecast for Arkansas through 1986," *Arkansas Business and Economic Review*, Vol. 18, No. 2, p. 7.

[2] Phillip Taylor, "Quarter I and An Early Outlook for 1986," *Arkansas Business and Economic Review* Vol. 19, No. 2, p. 33.

[3] William R. Darden, David J. Good, and Michael J. Dorsch, "Arkansas Economy Predicted by AHRP to Stabilize," *Arkansas Business and Economic Review*, Vol. 19, No. 2, pp. 1-6.

EXHIBIT 1

BUREAU OF BUSINESS AND ECONOMIC RESEARCH
(501) 575-4151
Fayetteville, Arkansas 72701

UNIVERSITY OF ARKANSAS . College of Business Administration

July 7, 1986

Dear Sir/Madam:

A forecast of the trend of Arkansas economic activity over the next eighteen months is a natural and desirable extension to supplement the research published in the Arkansas Business and Economic Review which is distributed to more than 2,500 Arkansas subscribers. Accordingly, the Bureau staff has developed a questionnaire to be sent to some two hundred Arkansas residents who are knowledgeable of the State's economy and can provide expert opinions on the economic trend. The survey sample consists of selected representatives from academia, business, and government. Predictions are sought for the yearend positions of calendar years 1986 and 1987.

You are one of those who are requested to express their opinions on Arkansas' ongoing economic activity. You are asked to indicate your views on items in the attached questionnaire and to return it to:

Bureau of Business and Economic Research
College of Business Administration
University of Arkansas
Fayetteville, Arkansas 72701

In addition to your responses to the specific questions, please feel free to add suggestions on other subject areas that should be included in future economic forecast surveys. Also, note that you are not asked to identify yourself with your responses; but your submission will be accorded confidentiality if you wish to identify yourself in responding.

You are requested to return your completed questionnaire as soon as possible but not later than August 1, 1986, so that the resulting forecast can be included in the issue of the Review to be published this fall. Your participation will be appreciated. An addressed, postage-paid envelope is enclosed for your convenience.

Sincerely,

Phillip Taylor
Director

PT/seb

Enclosure

The University of Arkansas is an equal opportunity affirmative action institution

EXHIBIT 2
ECONOMIC CONDITION SURVEY

Part I: Estimated Key Economic Trends as of calendar yearends 1986 and 1987

Please indicate the phrase which most nearly corresponds with your views. As a point of reference, unless specified otherwise, all change is to be estimated for the 1986 and 1987 yearend levels (base = yearend 1985).

1. Wage rates in real terms in Arkansas will be:

1986		1987	1986		1987
17.8%	Down	12.3%	49.3%	About the Same	49.3%
32.9%	Up	37.0%	0.0%	No Opinion	1.4%

2. Total consumer loans in Arkansas will be:

1986		1987	1986		1987
20.6%	Down	24.7%	26.0%	About the Same	24.6%
49.3%	Up	46.6%	4.1%	No Opinion	4.0%

3. Availability of capital investment funds for expenditure in Arkansas on plant and equipment will be:

1986		1987	1986		1987
20.5%	Down	17.8%	32.9%	About the Same	28.8%
45.2%	Up	50.7%	1.4%	No Opinion	2.7%

4. Price level for consumers in Arkansas will be:

1986		1987	1986		1987
8.2%	Down more than 1%	6.8%	37.0%	Up 1% to 3%	28.8%
15.1%	Down 1% or less	8.2%	12.3%	Up 3% to 5%	28.8%
15.1%	About the same	19.2%	0.0%	Up more than 5%	1.4%
9.6%	Up 1% or less	4.1%	2.7%	No Opinion	2.7%

5a. Value in current dollars of new residential construction in Arkansas will be:

1986		1987	1986		1987
23.3%	Below 1984 level	20.5%	20.5%	About the same	24.7%
54.8%	Above 1984 level	52.1%	1.4%	No Opinion	2.7%

b. Arkansas' residential construction experience, relative to that of the U.S., will be:

1986		1987	1986		1987
31.5%	Worse	26.0%	37.0%	About the Same	37.0%
27.4%	Better	31.5%	4.1%	No Opinion	5.5%

6. Level of commerical-industrial activity in Arkansas as measured by retail sales will be:

1986		1987	1986		1987
20.5%	Down	15.1%	35.6%	About the Same	39.7%
39.7%	Up	41.1%	4.2%	No Opinion	4.1%

7. Unemployment rate in Arkansas (8.2% in April 1986) will be:

1986		1987	1986		1987
0.0%	Less than 7	5.5%	4.1%	Between 9 & 10%	16.4%
39.7%	Between 7 and 8%	42.5%	0.0%	Over 10%	0.0%
54.8%	Between 8 and 9%	34.2%	1.4%	No Opinion	1.4%

8. Civilian labor force (1,045,000 in April 1986) in Arkansas will be:

1986		1987	1986		1987
9.6%	Down	9.6%	52.1%	About the Same	38.4%
32.9%	Up	45.2%	5.4%	No Opinion	6.8%

9. Cost of transportation services in Arkansas will be:

1986		1987	1986		1987
28.8%	Down	15.1%	34.2%	About the Same	31.5%
22.0%	Up	38.4%	15.0%	No Opinion	15.0%

10. In comparison with the U.S. average, Arkansas' total population change will be:

1986		1987
30.1%	Below the U.S. average	32.9%
42.5%	About the same as the rest of the country	35.6%
27.4%	Above the U.S. average	31.5%

11. Total farm cash receipts for 1986 and 1987 in current dollars (current dollar cash receipts from Arkansas farm marketings totaled $3,208 million in 1984 and $3,408 million in 1985) will:

1986		1987
45.2%	Decrease from the 1985 current dollar level	35.6%
31.5%	Remain about the same as 1985 current dollar amount	30.1%
13.7%	Increase from the 1985 current dollar level	23.3%
9.6%	No Opinion	11.0%

12. With respect to the 1985 total of $24,048 million, total annual Personal Income for Arkansans in real dollars (current 1986 and 1987 dollars adjusted for inflation to 1985 dollars) will:

1986		1987	1986		1987
16.7%	Fall	18.1%	45.8%	Remain about the same	33.3%
37.5%	Rise	48.6%	0.0%	No Opinion	0.0%

13. The Dow Jones Industrial Average (approximately 1335 on July 15, 1985 and 1855 on June 19, 1986) will be:

1986		1987	1986		1987
0.0%	Less than 1200	4.2%	23.6%	Between 1700 & 1799	18.1%
5.6%	Between 1200 & 1399	2.8%	33.3%	Between 1800 & 1899	12.5%
4.2%	Between 1400 & 1499	8.3%	20.8%	Between 1900 & 1999	13.9
1.4%	Between 1500 & 1599	5.5%	2.8%	Over 2000	16.7%
5.5%	Between 1600 & 1699	9.7%	2.8%	No Opinion	8.3%

14. Choose the five (5) issues that you feel will exert the most influence on the U.S. economy:

1986		1987
4.0%	Inflation	5.6%
18.7%	U.S. budget deficits	18.2%
1.2%	Weather effects on agriculture and energy usage	1.4%
0.9%	Ecological and environmental pollution	0.6%
16.4%	Foreign competition in domestic markets	14.8%
4.3%	Foreign investment in domestic markets	3.6%
6.4%	Unemployment	6.7%
6.6%	Energy supply and cost	7.0%
3.7%	High valued dollar in international exchange	2.5%
12.7%	Balance of trade deficits	11.8%
10.7%	Interest rates	11.8%
7.2%	New acts and laws by Congress	9.0%
4.0%	Money supply	3.6%
3.2%	International commitments and developments	3.4%
0.0%	Other	0.0%

15. In our society, the three (3) most serious economic problems will be:

1986		1987
20.5%	Foreign competition in domestic market	19.0%
8.3%	Unemployment	8.3%
3.4%	Inflation	5.9%
13.7%	Declining productivity and real growth	13.2%
18.5%	Balance of trade deficits	18.5%
28.8%	U.S. budget deficits	26.8%
2.4%	Interest rates	5.4%
3.9%	High valued dollar in international exchange	2.4%
0.5%	Other	0.5%

List:

16. What is the percent chance that the recovery in the domestic economy will continue through 1986? 17-83-15 %, through 1987? 40-60-2 %

17. With the recent U.S. experience as regards inflation and unemployment, indicate those approaches that are recommended in order to reduce unemployment:

1986		1987
5.3%	Reinstitute the military draft	5.3%
3.3%	Create more government "public service" jobs	3.3%
4.7%	Increase public works spending	4.7%
25.3%	Institute tax credits to stimulate employment	24.7%
28.0%	Let the price system regulate the market	30.0%
8.0%	Sponsored up-grading job training programs, including OJT	7.3%
1.3%	Broaden entitlement programs	1.3%
19.4%	Eliminate minimum wage legislation on teenagers	18.7%
1.4%	Increase defense spending	1.3%
3.3%	Other	3.4%

List:

Part II: Undated Current Economic Issues or Developments

18. With state revenues below projections and federal revenue-sharing down, new public school education standards will not likely be met over the next five years unless action is taken to:

(check one or more items)

13.3% a) impose a new 1¢ sales tax
8.4% b) make drastic cuts in government services and personnel
6.3% c) raise income taxes
18.9% d) raise local communities' school millages substantially
24.4% e) urge widespread, voluntary consolidation of school districts
18.2% f) institute a state lottery to augment revenue
10.5% g) other

19. Federal income tax reform based on what's known of the separate Senate and House bills is likely to result in:

(check one or more items)

20.8% a) more pocket money for individuals
9.0% b) increased prices and added inflationary pressures
19.5% c) reduced profits for businesses
39.6% d) decreased incentive for investing, particularly in real estate and construction
11.1% e) other

20. In order to increase the rate of economic development, the state government should:

(check one or more items)

11.8% a) advertise in major U.S. newspapers, business magazines
3.2% b) advertise nationally on radio and TV
20.3% c) create specialized briefing teams
22.2% d) encourage active promotion of the state by principal state officials and other Arkansas dignitaries when visiting in other states and nations
28.8% e) sponsor incentives such as lower tax rates or accelerated depreciation schedules
13.7% f) other

CREDIT INSURANCE: BOTH SIDES OF THE STORY

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INTRODUCTION

"No man's debts should live after him." That slogan of the pioneering Morris Plan Insurance Society since 1917 captures the essence of credit life insurance popularity.[1] Its simple eloquence states the common need of lenders and borrowers alike to protect contracts from the risks of human frailty.

The purpose of this brief article is to present the pros and cons of the sometimes-controversial credit life insurance product. The first section discusses the nature and characteristics of the credit life product, the kind of protection it provides, and the regulatory environment in which it is sold. The second section identifies the various beneficiaries of credit life insurance and explains the economic importance of the product. The third section provides data about the growth of credit life and relates its increased usage to credit growth in the country over the past several years. The fourth section explores the reasons why credit life insurance is criticized, with particular emphasis being given to pricing and selling practices. The fifth section places the problems of regulating the sale and pricing of credit life insurance in the context of the current financial environment. The final section details the need for education of the public—particularly by the media—about the advantages of the credit life product.

WHAT IS CREDIT LIFE INSURANCE?

Credit life insurance is basically decreasing term insurance which pays the balance of installment debt or charge accounts to a lender in the event of a borrower's death before payments are completed. A master policy is issued to a creditor or vendor to insure the life of the borrower with the creditor as beneficiary. While credit life insurance is sometimes sold on an individual basis, over 80% is provided by group contracts arranged by financial institutions (banks, savings and loan associations, credit unions), automobile dealers, trust companies, retailers, small loan companies, and sales finance companies. State laws vary as to which kinds of businesses qualify as eligible creditors, as do the policies of credit life insurance carriers.[2]

Credit life insurance is used to provide protection to lenders for unsecured personal loans as well as indebtedness secured by conditional sales contracts and lease sales contracts. It is widely used for motor vehicle loans, farm equipment loans, appliance loans, crop loans, general personal loans, and even for credit card charges. While lenders may be empowered to require assignment of life insurance to cover the debt in case of the borrower's death, in most states the lender cannot legally require that it be the source of insurance. Coverage usually extends for a maximum of ten years or less.[3]

The creditor who purchases a credit life policy charges the borrower for the premium—usually through an increase in the interest rate or service charges—and then remits the premium to the insurer. Premiums are based upon the amount of debt outstanding each payment period, usually monthly. Thus, cost is related directly to the outstanding balance, with rates being quoted as "X" cents per $100 of coverage.[4]

The insurance on the life of any one debtor terminates when the debt is extinguished, when the group policy terminates, or when the indebtedness is transferred to another creditor. The insurance also terminates if the payments become overdue for a specified period (usually one to six months). The carrier may decline to insure new debtors if the number of insured debtors of any single creditor-policyholder falls below the group underwriting requirements (usually 100 people) during any policy year.

As with group ordinary term life insurance policies, no medical examination is required for credit life applicants. Unlike ordinary term life policies, however, the age and health of debtors do not enter into premium calculations. Presumably, the cost of maintaining age and health records of many small policyholders would be impractical as well as prohibitively expensive. Of course, the age and health factors are reflected in the experience rates developed from the losses of the group.[5]

Credit life insurance regulation varies by state. Some states have set recommended scales for the rates to be charged, with larger groups being permitted to charge less than smaller ones. Other states have not legislated the rates to be charged but have set a maximum rate which lenders are permitted to charge. Rate-setting authority sometimes rests with the legislature, but more often it lies with the Insurance Commissioner.

Many states have put little teeth in their regulations. Even when the power to set rates is in the hands of the Commissioner, where powerful arguments can be made that it should be, he may find it politically inexpedient to directly confront those groups who stand to benefit if rates are held high. As a result, observers have leveled accusations that regulators have not pushed for the lowest rates possible, and that the cost of credit life protection is excessive in some jurisdictions.[6]

BENEFICIARIES

Credit life insurance, albeit sometimes maligned, serves important societal and economic purposes. There are several beneficiaries to every credit life purchase.

The first beneficiary is the borrower's family, which is secure in debt-free possession of consumer goods bought in good faith by the deceased wage earner. No financial burden is left behind for others to meet.[7]

The second beneficiary is the business lender, who is assured of contract performance without the difficulty of pressing an unsecured claim against an estate and without the burdensome repossession of used goods. Otherwise, the loan might prove uncollectible if the borrower dies. Also, as noted below, credit life insurance serves to increase business for lenders, since many people who use the product would not be able to obtain credit without it.[8]

A third beneficiary of credit life insurance (as with any type of life insurance) is the entire nationwide economy, whose myriad "accounts receivable" ledgers enjoy vast freedom from the crippling uncertainties of debtor default. Credit life acts as a stalwart protector of our economy.

The importance of credit life insurance as a tool of commerce cannot be overstated. It is the fastest growing type of life insurance. It now accounts for almost 5% of all life insurance in force. At year-end 1983, 80 million consumers with $170 billion of borrowings were covered with credit life insurance, and the amount has almost tripled over the past 15 years, despite the fact that many states restrict the per-insured amount to a low level, often $5,000 or $10,000.[9] Since lenders would probably risk fewer receivables or other credit in small loans if they were protected only by used-goods recovery, credit life insurance clearly fills a widely recognized need. Also, since more people are eligible for credit because of credit insurance, their growing numbers give impetus to consumer industries. This expansive effect is magnified still further by the classic economic multiplier effect. Credit life insurance for the ultimate consumer is a vital factor for the success of individual business persons as well as that of the economy.[10]

Credit life insurance has extreme economic importance for another reason. It serves socio-economic and demographic markets which other types of life insurance do not. Credit life customers are generally lower income and blue-collar people who are vulnerable to wage interruption. They are relatively less educated, frequently underinsured, and often saddled with high levels of debt to income. Many borrowers in this group use credit life insurance to cover loans in small amounts and increments. Because companies often set minimums for premiums on ordinary policies, credit life insurance may be the only protection available for borrowers in low income strata who contract small, short-term loans.[11]

Research reveals that consumers do not resent credit life and even appreciate it. Surveys consistently show that those who like this product are people who have the strongest rational need for its protection. The surveys also show that consumers understand credit life insurance, do not feel coerced into buying it, are willing to recommend it to others, and often intend to use it again.[12]

IMPACT OF ECONOMIC CHANGES

Credit life insurance is clearly a phenomenon of the credit economy in which we live, and the effects of changes in the market place in recent years cannot be overemphasized. For example, the growth of installment credit alone is staggering. It rose from $296 billion in 1979 to $333 billion in 1981, and is forecast to reach $832 billion in 1988.[13] Credit life insurance owes much of its development and growth to the ever increasing expansion of consumer credit. In turn, credit life insurance has been a key facilitating factor in the expanded use of credit; it has eased the task of borrowing by reducing the loss which lending institutions might suffer at the borrower's death.[14]

Other economic changes have impacted heavily on credit life insurance sales. Aside from sheer growth of consumer credit, the range and pace of changes in financial instruments, institutions, and practices have been extraordinary and continually complicate both lenders' and consumers' decisions. There is a growing preference for credit cards, revolving charge accounts, and home equity and variable rate loans that cannot be covered fairly by the traditional declining balance credit life policy. Moreover, typical consumer loans are growing larger and the maturity dates are expanding, making credit insurance a more conspicuous item in the credit contract.[15]

To keep profits ahead of rising costs, creditors are forming their own insurance company subsidiaries to handle their credit life sales, cutting the independent insurers out of the market. One estimate attributes 25% of credit life insurance premiums to insurance subsidiaries of bank holding companies, finance companies, and auto dealerships. Proliferation of companies, often aimed at a specific market segment, greatly complicates industry regulation, difficult already in an industry resting heavily on personal ethics and integrity.[16]

SOURCES OF SUSPICION

Suspicion of the credit life product arises primarily from the way that it is priced and the alleged abuses which result therefrom. Before addressing this issue, it should be noted that many critics do not understand the product and the economic and societal purposes it serves. They see it as nothing more than a lucrative extraction of consumer dollars, with few redeeming social virtues. They often admonish the consumer to buy more term life insurance, never noticing that many consumers are low paid and underinsured, have health problems or are aging.

Despite great efforts to assuage the concerns of critics, the actions of sellers of credit life insurance products sometimes seem to belie their claims of fair pricing and substantial consumer benefits. An example may help illustrate why this is true. A non-insurance purveyor of credit life insurance may charge 1% of the original amount of an installment loan per year, which is a premium rate of $1.00 per $100 of protection. This is a multiple of the amount charged by many companies offering term insurance products (perhaps 5 or 6 times as much). It seems clear that many young and healthy borrowers could save premium dollars by assigning an existing term (or whole life) policy, or by purchasing a new term policy, equal to maximum indebtedness, instead of buying a credit life policy offered by the lending agency.[17]

A part of the high price of credit life insurance (aside from the fact that it is underwritten on a guaranteed issue, nonmedical basis) may be attributed to high commission rates. Nationwide, commissions took 40% of every credit life premium dollar in a recent year, as contrasted with only 12-15% of every homeowners' policy premium dollar. Critics charge that credit life vendors often sell at the highest or very nearly the highest possible commission rate, and that this results in the exploitation of credit life users.[18]

The high commissions provide incentive for the lender to make a credit life sale with every loan or product sale, and may help explain why sellers of the credit life product show such high penetration rates (ratio of credit life sales to total number of loans made). Levels as high as 80% have been recorded. The high penetration rate provides ammunition for those who assert that there are coercive credit tie-ins relating to the sale of "optional" credit insurance in connection with small loans.[19]

Perhaps this accusation—that consumers are "victimized" by lenders who combine the extension of credit with the sale of credit life—is most damaging to the credit life insurance industry. It is argued that the vendor's quotation of installment loan payments that include credit life, or suggestions about choice of coverage or premium rates, may easily lead the borrower to believe that his application for credit will be more favorably received if he purchases credit life insurance. The problem is complicated in those cases where a life insurance company is formed by the creditor to handle credit life coverage. Here the creditor may have even less incentive to remind the borrower that coverage might be obtained more economically elsewhere.[20]

Abuses are noted in other ways. There are criticisms of overcharges resulting from reverse competition, where insurance companies compete for lenders to sell their policies, resulting in higher commissions for the creditor-lender and higher prices for consumers. There are also charges of low benefit-to-premium ratios.[21]

Some observers insist that there is inadequate disclosure to consumers of claims collections and policy expirations. Others say that double coverage is sometimes sold to what they see as a captive market.

As a result of these indictments because of real or alleged abuses, one Insurance Commissioner has estimated that American consumers were overcharged for credit life purchases by as much as $650 million in 1982. This is one reason why observers have expressed concern about the rate-making practices of credit life vendors.[22]

WHY PROBLEMS ARE NOT SOLVED

A question naturally arises about why—with the concern expressed about the pricing of credit life insurance—legislatures and/or Insurance Commissioners do not respond to the critics, or at least study the rate-making methods for the product more carefully. After all, one hears fewer complaints voiced about ordinary life insurance products.

The answer has to do with the groups of people who benefit directly from credit insurance sales. Lenders who act as agents in credit insurance sales are in some cases prominent citizens in their communities and state. They may be influential with political office holders, and they often are represented by lobbies. Lawmakers are at least likely to listen to their views on credit insurance rates.[23]

Still another question might ask why credit insurance rates vary so widely among the fifty states. To cite only one example, credit life insurance for a $6,000 car note at 15 percent APR for 48 months costs $339 in Alabama, but only $76 in New York. There seems to be no clear reason for this vast difference except that credit insurance regulation is virtually autonomous state-by-state. The industry operates in a dynamic, nationwide financial market, but it is regulated by the insurance commissioners in the various states. As a result, rate-setting methods and sales practices state-by-state have never found consensus among any group. Credit insurance, more than any similar product, is buffeted by the turbulent climate of change involving lenders, borrowers, regulators, indeed everyone participating in the rich, entrepreneurial broth characterizing free enterprise capitalism. This environment militates against any uniformity in regulation and pricing practices.[24]

In protecting the consumer, credit insurance has proven itself dependable over and over. Yet there remains some doubt about the way that prices are set. Rates existing and proposed differ widely from state to state in roughly contemporaneous periods. Such wide differences invite suspicion of the rate setting practices in some jurisdictions.

INDUSTRY RESPONSE

The insurance industry has shown great vigor in policing itself in the past. At the turn of the century new levels of responsibility were forced on the insurance industry by first the Armstrong Committee reviewing life insurance, then the Merritt Committee reviewing casualty insurance. Credit insurance seems fated to undergo similar scrutiny in this period of rising credit use when all economic factors are suspect to wary consumers.

The industry has already shown great concern over the credit life product, and has made efforts to insure that it is sold at a price that will produce a fair return of benefits to consumers. The National Association of Insurance Commissioners (NAIC) has grappled with credit life insurance issues since 1948. A NAIC Credit Insurance Task Force has studied regulation of the product in all its forms. A model bill of the NAIC has helped curb rate and contract abuses in about half the states. However, no consensus has emerged with regard to regulating the credit life product, though several states are well along toward a competitive, responsible free market largely free of consumers' unrest.[25]

THE NEED FOR EDUCATION

From whom can consumers expect to get a balanced story on credit life insurance? The truth is scarcely revealed by the issue's treatment thus far in newspapers and television, the so-called news media. From news reports alone, one could only conclude that in most states, many credit customers are coerced into buying expensive credit insurance instead of inexpensive term insurance. Sometimes, the consumer is simply ignored in news reports concerning what legislators, government figures, and lobbyists are up to.

Nevertheless, a real service appropriate for the news media would be a full review of credit insurance, its procedures (simple), and its widespread benefits (enormous). First, the news media could distinguish credit insurance, available to virtually every borrower of almost any age and health condition, from all other insurance which is extremely age and health sensitive. The media could cite such examples as an infirm 60-year old borrower buying credit insurance on a loan at exactly the same rate and with equal convenience as a 25-year old person in perfect health.

Second, the news media could make clear the law that prohibits coercion of the borrower to buy credit insurance, and review the wide range of institutions that provide a competitive selection of credit insurance to borrowers who want it but not necessarily from the lender at point of sale. This service by the media would help educate consumers of their actual rights and help open credit insurance to healthy competition and better consumer scrutiny.

Third, the news media could mount a searching probe into the credit insurance industry, including its rate-setting practices and its profit margins, and ascertain whether the existing rates seem valid or are perhaps artificially held high. If rates seem suspect, the media has the power to ferret out responsible individuals and institutions for an accounting to the public.

The troublesome part of the credit insurance story is told often by those who advocate higher rates, more controls, or greater government involvement. The ".. rest of the story .."—the story of a product that is vigorously at work in every community protecting consumers, business people, and the whole national economy—is often omitted. The purchasing power of the nation is vastly increased because of the existence of credit insurance. That is the side of the story the public needs to hear more about, through many media channels, from the insurance industry itself. In the final analysis, the insurance industry, after the consumer, is the institution which stands to gain the most from a well-informed consuming public.

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[1] Daniel P. Kedzie, *Consumer Credit Insurance* (Homewood, Ill.: Richard D. Irwin, Inc., 1957), p. 18.

[2] Robert Godfrey, "Credit Life: A Businessman's Perspective," *The Credit World*, March/April, 1984, pp. 28-29. The reader should note that, while most credit life insurance is sold on a decreasing term basis, a small percentage is sold on a level term basis to cover short-term, single-payment loans.

[3] Ibid.

[4] The creditor in the credit life insurance arrangement cannot charge the borrower more than the amount paid the insurance carrier. However, as is noted later, lenders receive a commission on the coverage they sell, and sometimes receive an experience dividend on the group contract. These items are an important revenue source for many lenders and their alleged misuse has led to charges of abuse in some cases. See Robert I. Mehr and Sandra G. Gustafson, *Life Insurance: Theory and Practice* (Plano, Texas: Business Publications, Inc., 1984), p. 321.

The premium for the credit life insurance product is usually small in absolute terms because the covered debt is typically small. Also, in most credit life contracts, the premium declines over time since the amount of insurance in force declines proportionately with debt amortization. However, the premium may be paid in a single payment for short-term notes or, in rarer instances, for installment loans.

[5] This is discussed extensively in Joel Huber, "The Benefits of Credit Property Insurance in the Wake of Hurrican Alicia," *33rd Annual Meeting Report of the Consumer Credit Insurance Association* (Chicago, Ill.: Consumer Credit Insurance Association, 1984), pp. 39-44.

[6] "Need Credit Insurance: Not on Your Life," *Changing Times*, March, 1985, pp. 45-46, and "Missouri Bill to Freeze Credit Insurance Rate," *National Underwriter* (Life and Health Insurance edition), April 23, 1983, p. 17.

[7] Godfrey, "Credit Life: A Businessman's Perspective," pp. 28-29.

[8] Edwin Nadel, "Financial Planning for the Terminally Ill," *Journal of the Institute of Financial Planners*, Spring, 1981, pp. 159-162, and Joel Huber, *If Credit Insurance Has So Many Friends, How Could It Have So Many Enemies?* (Chicago, Ill.: Consumer Credit Insurance Association, 1980), p. 7.

[9] Godfrey, "Credit Life: A Businessman's Perspective," pp. 28-29, and American Council of Life Insurance, *1984 Life Insurance Fact Book* (Wash., D.C.: ACLI, 1985), pp. 5 and 32.

[10] Godfrey, "Credit Life: A Businessman's Perspective," pp. 28-29. There is some evidence of the beginning of a decline in the growth of credit life insurance. See Stephen Piontek, "Credit Insurance Lagging Behind Consumer Debt," *National Underwriter* (Life and Health Insurance edition), July 6, 1985, p. 12.

[11] William F. Burfiend, "The Outlook for Credit Life Insurance," *Consumer Credit Insurance Association* (Chicago, Ill.: Consumer Credit Insurance Association, 1981), pp. 3-4.

[12] "Credit Insurance Seen As Efficient Coverage for Many," *National Underwriter* (Property and Casualty Insurance edition), September 11, 1981, p. 32.

[13] Akin Toffey, Jr., "Marketing Insurance in the 80's," *33rd Annual Meeting Report of the Consumer Credit Insurance Association* (Chicago, Ill.: Consumer Credit Insurance Association, 1984), pp. 22-28.

[14] "Need Credit Insurance: Not On Your Life," pp. 45-46.

[15] Burfiend, "The Outlook for Credit Life Insurance," pp. 3-4.

[16] Grady Silverthorne, (untitled address), *32nd Annual Meeting Report of the Consumer Credit Insurance Association* (Chicago, Ill.: Consumer Credit Insurance Association, 1983), pp. 52-53.

[17] "Need Credit Insurance: Not On Your Life," pp. 45-46. Some of the current economic changes may work against the continuing long-run growth of credit life insurance. See "Credit Insurance Market Dwindles, Speakers Report at CCIA Meeting," *National Underwriter* (Life and Health Insurance edition), June 8, 1985, p. 10.

[18] David A. Winston, "Credit Tie-Ins: The Bank's Credibility Gap," *Life Association News*, April, 1985, p. 169.

[19] Ibid., and "Missouri Department Investigates Credit Life," *National Underwriter* (Life and Health Insurance edition), May 19, 1984, p. 43.

[20] Winston, "Credit Tie-Ins: The Bank's Credibility Gap," p. 169.

[21] Ibid.

[22] Ibid.

[23] M. Lee Smith, "Credit Life Battle Has New Issues," *The Nashville Banner*, Feb. 26, 1985, p. A-7.

[24] Toffey, "Marketing Insurance in the 80's," pp. 22-28, and "N.H. Credit Insurance Rates to be Reduced 7 Percent," *National Underwriter* (Life and Health Insurance edition), December 21, 1985, p. 12.

[25] Joseph Branch, "Legal Consideration of Mandatory Downward Deviations—The Wisconsin Experience," *32nd Annual Meeting Report of the Consumer Credit Insurance Association* (Chicago, Ill.: Consumer Credit Insurance Association, 1983), pp. 18-21. Producer groups often serve as watchdogs of credit life insurance purveyors. See Mary Jane Fisher "Producers Seek Tougher Regulation of BHC Credit Insurance Activity," *National Underwriter* (Life and Health Insurance edition), February 24, 1984, p. 22.

TRADITION IN TRANSITION: THE EMERGENCE OF NEW CATEGORIES IN PLANT LOCATION

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INTRODUCTION

This paper is an empirical study providing evidence that the factors associated with plant location have changed. The traditional emphasis on the quantitative variables of labor and transportation have given way to qualitative variables, primarily the attitudes of the constituencies involved.

There have been a number of important theories and empirical studies in the area of plant location over the years. The earliest location theory was Johan Von Thunen's isolated state theory, which was developed in the early 1800s. This was a simple model, based on the costs for transportation of finished goods to the market area.[1] The most influential work in this area was by Alfred Weber, who in the early 1900s developed his least cost theory. This model was expanded to include labor costs and an agglomeration category, in addition to transportation costs.[2] Agglomeration is a category which includes any variable other than the primary ones. A number of other theories have extended the early work of Thunen and Weber. Nearly all of these theories were primarily based on either profit maximization or cost minimization, involving the use of quantitative data factors.

Several empirical studies have been instrumental in developing the practical side of plant location. Some of the more important studies include: the Greenhut and Colberg study of Florida;[3] the Mueller, Wilken, and Wood location study in Michigan;[4] the Chapman and Wells study of Georgia;[5] and the Schriver and Carrier Tennessee study.[6]

GENERAL FINDINGS OF OTHER EMPIRICAL STUDIES

The results of the above empirical studies must be viewed in the light of a variety of different test groups, variable lists, testing methods, and time periods. It is therefore difficult to arrive at any objective conclusion. At the same time, it seems that most of the studies can be generally classified into three major categories. These categories in no specific order are: transportation (raw materials and finished goods), labor, and personal considerations.[7] These broad groups basically support the findings of the early economic theorists. Weber used labor and transportation costs as his main criteria. His agglomeration category might be viewed as comparable to the above personal consideration category. In essence, most of the work in plant location has been related to the cost considerations of labor and transportation, with only a minor role assigned to personal considerations.

METHODOLOGY OF THE PRESENT STUDY

This article enlarges on the findings of a research study on plant location by Epping.[8] The Epping questionnaire or the questionnaire used by Epping in his study was mailed to three different test groups: manufacturers having located a plant in Arkansas (MLA); manufacturers not locating in Arkansas (MNLA); and a civic interest group (CIG) consisting of town mayors and Chamber of Commerce presidents. All manufacturers polled were at company headquarters located outside the State of Arkansas. The questionnaire had the respondents rate thirteen general location categories and eighty-four specific location variables on both importance in a plant location analysis and advantages in the State of Arkansas.

A basic hypothesis was formulated in order to compare the test groups: there is no significant correlation between the ranking of location variables by the three test groups.

FINDINGS OF THE PRESENT STUDY

The questionnaire response rate for the MLA group was 39%, with 118 responses from a population of 360 companies. There were 73 responses from a population of 322 for the MNLA group, giving a response rate of 23%. The CIG group had a response rate of 37%, with 209 responses from a population of 565 mayors and Chamber of Commerce presidents.

In this section, we will first look at general categories of plant location. An earlier article by the author provided a ranking of the thirteen pre-determined general categories of plant location according to importance to manufacturers.[9] The three most important general location categories were found to be labor, taxes, and industrial site. These results generally support the findings of the previously discussed location studies. Readers interested in how these thirteen general categories relate to advantages in the state of Arkansas should refer to an article in the *Arkansas Business and Economic Review*.[10]

Another approach would be to look at specific variables in plant location. Eighty-four specific variables were ranked on importance, independent of any pre-determined general category. The coefficient of rank correlation was determined between the pairs of the three test groups and is shown in Table 1. All three groups were significantly correlated, thus rejecting our general hypothesis at this level. For the top four ranked location variables, both the MLA group and the MNLA group have the same ranking for these variables. In rank order the variables are: (1) few work stoppages; (2) high productivity; (3) favorable attitude of workers; and (4) favorable union situations, shown in Table 2. These four variables fall within the general location category of labor. This again provides support for the earlier studies on plant location.

TABLE 1
COEFFICIENTS OF RANK CORRELATION

	MLA	MNLA	CIG
MLA	1		
MNLA	.93	1	
CIG	.72	.75	1

If we consider the top twenty-five variables as most important, a difference begins to appear from the earlier studies. These twenty-five variables can be grouped into seven general categories as shown in Table 3. It can be seen that attitude variables are ranked first by all three test groups. Labor factors are ranked second by the MLA and MNLA, and third by the CIG.

This ranking of categories is quite different from the results found in the ranking of pre-determined categories, or the results of earlier empirical studies. Attitudes have not been reported as a major category in plant location from any of the previous studies surveyed. In fact, it would be difficult to even find the term used in such studies. These results were not expected prior to the research study, and specific attitude factors were included only to make a comprehensive list of factors on the questionnaire. This raises the question, why have attitudes not shown up in earlier studies? It could be because the studies didn't include such variables on their questionnaire list. That is a definite possibility in several of the studies. But, a few studies have included attitude variables, or used an open-ended type of

TABLE 2
ALL SPECIFIC IMPORTANCE FACTORS RANKED TOGETHER

Factors	Manufacturers Locating In Arkansas		Manufacturers Not Locating In Arkansas		Civic Interest Group	
	Rank	Average	Rank	Average	Rank	Average
Few work stoppages	1	6.72	1	6.88	13	5.70
High productivity	2	6.63	2	6.72	16	5.68
Favorable attitude of workers	3	6.61	3	6.69	7	6.04
Favorable union situation	4	6.52	4	6.59	60	6.10
Low-labor turnover and absenteeism	5	6.50	8	6.49	27	5.45
Availability of highway facilities	6	6.30	6	6.51	6	6.06
Favorable labor laws	7	6.30	10	6.46	19	5.53
Availability of electric power	8	6.10	5	6.57	3	6.33
Favorable attitude of labor legislators	9	6.08	9	6.49	20	5.52
Favorable attitude of community leaders	10	6.07	11	6.21	2	6.35
Availability of gas	11	6.05	17	5.91	8	5.86
Low county and municipal property tax	12	5.90	14	6.03	18	5.65
Favorable attitude of tax legislators	13	5.83	7	6.50	26	5.46
Favorable attitude of community residents	14	5.83	16	5.99	4	6.10
Low state unemployment compensation tax	5	5.80	15	6.00	44	5.05
Availability of water	16	5.66	25	5.66	1	6.57
Availability of unskilled labor	17	5.78	24	5.68	9	5.82
Low shipping costs to markets	18	5.64	46	5.15	49	5.02
Availability and low cost of private land	19	5.61	21	5.81	32	5.32
Low state corporate income tax	20	5.61	12	6.09	38	5.15
Helpful information provided by state agencies	21	5.59	20	5.84	14	5.70
Availability of skilled labor	22	5.55	27	5.62	42	5.07
Favorable attitude of law makers	23	5.48	13	6.08	24	5.49
Favorable attitude of utility agents	24	5.36	18	5.84	12	5.72

TABLE 2 (continued)

Factors	Manufacturers Locating In Arkansas		Manufacturers Not Locating In Arkansas		Civic Interest Group	
	Rank	Average	Rank	Average	Rank	Average
Favorable attitude of personnel providing information	25	5.15	26	5.66	15	5.68
Low state corporate franchise tax	26	5.06	30	5.50	43	5.07
Nearness to raw materials	27	5.01	54	4.88	55	4.95
Low real estate taxes	28	5.00	28	5.60	23	5.49
Helpful information provided by local agencies	29	4.97	40	5.29	36	5.27
State and local inducements such as lower taxes	30	4.96	23	5.75	54	4.97
Low state sales tax	31	4.96	39	5.29	40	5.10
Availability and quality of elementary and secondary schools	32	4.95	19	5.84	5	6.08
Favorable zoning laws	33	4.92	29	5.59	62	4.86
Availability and quality of health care facilities	34	4.88	22	5.79	21	5.51
Non-metropolitan population	35	4.87	57	4.79	53	4.98
Low-wages	36	4.86	59	4.61	48	5.03
Helpful information provided by other companies	37	4.83	50	5.01	35	5.29
Favorable attitude of transport agents	38	4.81	45	5.15	39	5.11
Favorable building ordinances	39	4.79	34	5.39	37	5.16
Favorable corporation laws	40	4.77	41	5.28	51	4.98
Availability of managerial talent	41	4.77	43	5.25	45	5.05
Low state severance tax	42	4.74	33	5.39	58	4.91
Favorable pollution laws	43	4.72	47	5.12	50	5.01
Availability of medical facilities	44	4.72	32	5.39	25	5.47
Availability of airway facilities	45	4.67	38	5.29	69	4.38

TABLE 2 (continued)

Factors	Manufacturers Locating In Arkansas		Manufacturers Not Locating In Arkansas		Civic Interest Group	
	Rank	Average	Rank	Average	Rank	Average
Favorable attitude of personnel providing services	46	4.65	31	5.42	47	5.04
Availability of industrial supply services	47	4.65	42	5.27	70	4.35
Availability and quality of vocational schools	48	4.64	49	5.07	31	5.34
Effective crime prevention facilities	49	4.62	36	5.36	46	5.04
Favorable insurance laws	50	4.60	35	5.39	41	5.07
Favorable attitude of raw material supplier	51	4.54	55	5.84	57	4.91
Availability of railroad facilities	52	4.44	67	3.78	33	5.32
Favorable climate	53	4.41	44	5.19	10	5.82
Facilities for disposal of industrial waste	54	4.35	63	4.36	75	4.25
Favorable attitude of financial agents	55	4.31	51	4.94	34	5.32
Availability and low cost of bond financing	56	4.25	53	4.91	56	4.94
Appealing recreational, social, and cultural facilities	57	4.24	48	5.11	30	5.34
Availability and low cost of an industrial park	58	4.19	37	5.33	29	5.36
Availability and low cost housing	59	4.17	52	4.93	67	4.48
Little environmental pollution	60	3.93	62	4.46	11	5.81
Potential growth of consumer markets	61	3.77	71	3.12	63	4.86
Availability and quality of universities and colleges	62	3.77	58	4.67	28	5.44
High standard of living in area	63	3.72	64	4.31	59	4.89
Favorable attitude within market channels	64	3.67	68	3.67	65	4.57
Availability of oil	65	3.65	65	4.25	66	4.55
Personal appeal of area to owner or manager	66	3.61	56	4.82	17	5.67

TABLE 2 (continued)

Factors	Manufacturers Locating In Arkansas		Manufacturers Not Locating In Arkansas		Civic Interest Group	
	Rank	Average	Rank	Average	Rank	Average
Availability of other financing	67	3.60	60	4.60	52	4.98
Favorable racial make-up of the community	68	3.51	61	4.49	61	4.87
Existing consumer markets	69	3.43	74	2.76	71	4.34
Availability of banking services	70	3.37	66	3.80	22	5.50
Favorable market services	71	3.15	69	3.48	72	4.28
Little competition in the market area	72	2.95	72	2.85	68	4.40
Availability of warehouses	73	2.56	73	2.79	79	3.69
Closeness to similar industries	74	2.37	70	3.18	76	4.18
Transporation facilities	75	2.17	79	1.81	77	3.69
Availability of pipelines	76	2.04	75	2.07	73	4.25
Mineral production of state	77	1.58	82	1.49	74	3.19
Availability of coal	78	1.57	76	1.91	80	4.18
Availability of nuclear facilities	79	1.51	81	1.63	84	3.20
Availability of private research and development facilities	80	1.37	80	1.78	83	3.46
Influence due to reciprocal agreements with other firms	81	1.31	77	1.90	78	4.16
Influence of location being home state of owner or manager	82	1.18	78	1.81	64	3.95
Availability of business consultants	83	1.02	84	1.23	82	2.51
Availability of advertising agencies	84	.89	83	1.38	81	2.68

Source: Gary M. Epping, Some Critical Factors In Site Selection, 1958-77 (Ann Arbor: University Microfilms, 1980)

TABLE 3
IMPORTANT LOCATION FACTOR CATEGORIES

Factor Categories	Manufacturers Locating In Arkansas (N = 118)		Manufacturers Not Locating In Arkansas (N = 73)		Civic Interest Group (N = 209)	
	Rank	Number of Variables	Rank	Number of Variables	Rank	Number of Variables
Attitude	1	8	1	7	1.5	7
Labor	2	7	2	5	3	4
Energy & Resources	3	4	3	4	4	3
Taxes	4	3	5	3	5	7
Transportation and Markets	5	2	6	2	6.5	1
Community	6	1	4	4	1.5	7
Services	7	-	7	-	6.5	1

Sources: Gary M. Epping, *Some Critical Factors In Site Selection, 1955-77* (Ann Arbor: University Microfilms, 1980)

questionnaire where respondents write-in their own choices. Still, in the latter cases, attitudes haven't shown up as a significant category.

Another and more likely possibility, is that a new category of important variables in plant location has emerged. Attitude variables are people-related, and both society and the business organization seem to have moved in that direction in the last quarter of a century. The beginning of this movement can be generally associated with the founding of humanistic psychology by Abraham Maslow in the early 1960's.[11] More recently, Alvin Toffler has stated that we are in the process of changing from a second wave society based on industrialism to a third wave centered on information or service.[12] Thomas Peters and Robert Waterman give evidence that excellence in business is based not only on the mechanical and quantitative, but also the intangible and human side of management.[13] Pascale and Anthos relate that the Japanese success story is largely based on attention paid to human factors in the organization.[14] These findings give strong support to the contention that both society and business are becoming more human oriented. In such an environment, changes in plant location variables might also be expected to change towards increased emphasis on human attitude variables. If such a change is indeed in process, it could signal a shift of power for determining public policy from the national level to that of the state and local communities. John Naisbitt's megatrends support this shift.[15] He found that we are decentralizing and growing from the bottom up, and are regaining a sense of self-reliance. Such shifts would give more power to human influences at both the state and local levels, thus increasing the importance of such factors in a location analysis.

Attitude can be described as a point of view concerning the way a person perceives his environment. Generally, the personality can be described as a function of values, attitudes, and behavior. Values are predominantly established from the parents and other role figures during one's youth. They are therefore deepseated, and difficult to change. Behavior is the easiest component of personality to change, and is the focus of most organizational attempts at creating growth or change within the organization. Attitudes fall somewhere in the middle in relation to an individual's ability to change.[16] Many of the self improvement courses, such as those pioneered by Dale Carnegie and Napoleon Hill, were based on a person's ability to change his own attitude. But, even with considerable effort and work, such changes in attitude take time. In relation to the community or other social groups, changes in attitudes take longer, assuming there is some type of motivation to even change an attitude. Therefore, attitudes for a group of people at any one point in time are rather rigid.[17]

The ranking of the attitude variables are also based on favorability, or the positive aspects of attitudes. From the overall rankings, companies favor locations with a favorable attitude of workers (#3) (Table 2). They also like favorable attitudes of labor legislators (#9), community leaders (#10), and community residents (#14), to mention a few.

Roger Schemenner indicates that "a company should not expect any quantitative analysis to isolate a single area or site as clearly optimal."[18] He indicates that personal variables such as attitudes can be equally important. Robert Marshalk, speaking of Richard-Merrell's movement from New York City to a southern location, said it was "a subjective judgment that we would be more comfortable and more productive in an atmosphere that was—how shall I put this?—less stressful."[19] One of the main reasons for the move was due to a friendly attitude on the part of the people in the community. This could mean that industry has changed from their traditional position on relying primarily on quantitative variables for the determination of a new location.

Another new category of importance, from Table 3, is the ranking of energy and resource variables as third. This also varies from the findings of other location studies. At the same time, it is not surprising to see such a high ranking considering the rapid rise in the cost of energy and other resources in recent years. From the overall rankings, availability of electric power ranked sixth, availability of gas eleventh, availability of water sixteenth, and availability and cost of land ranked nineteenth. This group of variables also shows the emergence of a new and important category in plant location. As energy costs continue to rise, the importance of this category should also continue to rise.

If one looks at the ranking of the MLA group. In a test of rank correlation, there is a significant correlation for the rankings of the two manufacturing groups, which gives evidence for rejection of our general hypothesis at this particular level. The only major change in ranking is the rise of community variables from sixth to fourth for the MNLA group. This could indicate that manufacturers who are looking for a location put slightly more emphasis on variables relating to the community than manufacturers that are already located. While these are not attitudes, they are personal factors and also indicate increased reliance on non-quantitative variables in plant location.

The CIG group ranking of variables in Table 3 differs from either manufacturing group. There was no significant correlation between the CIG and either manufacturing group. This presents evidence for acceptance of our hypothesis at this particular level. Attitudes and community variables were tied for the first place ranking. This shows the higher level of importance placed on non-quantitative variables by community leaders. Labor was given a slightly lower ranking (#3). Since society ultimately gives a company the right to operate in a particular state or area, the findings of this particular part of the study should not be taken lightly by industry.

CONCLUSIONS

The findings of this study resulted from the opinions indicated by those persons who responded to the questionnaire, and could differ from the opinions of the nonrespondents. To minimize such a bias, a second mailing of the questionnaire was made to the non-respondents. No significant differences in rankings were found between the two groups, giving reasonable confidence that the findings are representative of the entire population.

The results of this study may be indicative of a change in the relative importance of categories in a location study. As indicated earlier, the results of previous location studies can be categorized into the three categories of labor, transportation, and personal factors. The early theoretical studies were also primarily based on transportation and labor costs. The personal considerations category was generally used as a category for factors that did not fit in directly with the first two categories, and was considered of little importance.

When the top twenty-five location variables were grouped independent of the pre-determined general categories, a new pattern of category groups emerged. Labor was still considered important (#2), which corresponds with earlier studies (Table 3). Transportation and market variables did not rank as highly (#5) as in previous studies. This could indicate a lessening of importance for variables in this category. It could also mean that the market place and transportation facilities have become more efficient throughout the country, making such variables less important in a relative sense.

Attitude variables was the surprise category. Variables in this category rank first in importance. These are people variables, and may indicate a new attitude by industry toward the importance of personal variables in a plant location analysis. It is hoped that these findings will generate other studies which will look more fully into how these variables affect a plant location study, and investigate some of the areas where attitudes are considered most favorable.

Variables related to energy and resources ranked third in importance. This also is a finding that differs from previous studies. At the same time, the emergence of this category as highly important is no surprise, with the rapidly increasing cost of energy. In fact, these variables should be expected to increase further in importance if energy costs continue to rise faster than the general inflation rate.

The above findings show marked differences from those of earlier empirical studies, which leads to my final conclusion. Important variables in plant location should be expected to change over time in relation to subsequent changes in the environment. Variables considered to be most important twenty-five years ago cannot be assumed to be of similar importance today. Plant location is a dynamic process. The only way to measure change is for studies of plant location to continue and be ran at regular intervals.

Of course, the conclusion that plant location is a changing process cannot be derived from the present study alone. This study must be compared with previous studies, a procedure which has its weaknesses because of differences in test groups, variable categories, testing tools, and time periods. The most accurate way to determine if certain categories are increasing or decreasing in importance is to run longitudinal studies at different points in time. This would tend to suggest some standardization in the approach to plant location analysis, or at least a duplication of previous studies run at a later point in time.

Finally, the emergence of attitudes as an important factor category in plant location is a major finding. This, in turn, could mean a changing attitude on the part of manufacturers towards increased reliance on non-quantitiative variables in choosing a new plant location.

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UTILITY COMMISSIONER SELECTION METHOD: IMPLICATIONS FOR CONSUMERS, INVESTOR AND FIRMS

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INTRODUCTION

The issue of whether public utility commissioners should be elected or appointed has been given a lot of attention recently. The precipitous rise in utility service costs has led consumers to doubt the effectiveness of appointed commissioners. Although energy shortages, high rates of inflation, and environmental problems contributed to these rate increases, consumers feel that the appointed commissioners should have been more responsive to their interests.[1]

At present, only eleven states elect regulatory commissioners, while the remaining states appoint them. There is a noticeable trend, evidenced by referendums and legislative action in seventeen states, to move toward electing commissioners while, only four states have shown movement toward appointment. The rapid change in public sentiment regarding appointed commissioners is a cause of concern to researchers, politicians, and policymakers, since the impact of this change is not clear.

Various studies have been done to test the effectiveness of the two selection methods. The criteria for judging this effectiveness generally fall into two categories. The first category is based on the impact of the selection method on the rates charged customers. The second category deals with the impact of the selection method on regulatory climate. The purpose of this paper is to bring together the existing literature in this area and to provide some answers on the impact of commissioner selection on rates, returns, cost of capital and regulatory environment.

Arguments for and against the direct election of public utility commissioners are presented below and are followed by the results of various studies aimed at proving or disproving the effectiveness of elected public utility commissioners.

ARGUMENTS FOR AND AGAINST ELECTION OF COMMISSIONERS

Consumers generally favor election of commissioners, because the latter are believed to be more sensitive to rate hikes and related consumer issues because of the direct responsibility to the electorate. Consumers in a state do not decide whether to elect or appoint commissioners. If they had the choice, all the fifty states would have elected commissioners. It is decided by the governor and the legislature in the state. On the other hand, appointed commissioners may be less susceptible to improper rate adjustments that may cause long-run deterioration of service.[2]

Although one of the arguments for direct election of commissioners assumes that their election would keep consumer rates low, Navarro argues that this may be true in the short-run but not necessarily so in the long-run.[3] By lowering rates substantially, the utility companies may not be able to offer high enough rates of return to investors. Low bond ratings have also been associated with elected commissioners.[4] These factors may cause the utility's cost of capital to rise and cause a reduction in the availability of capital to the utility. Without capital, utilities cannot finance construction expenditures. Ultimately the consumer pays a higher price, and may also, face a lower quality of service.

An argument for appointing commissioners is that since reelection campaigns are unnecessary, public time is conserved. Also those persons best qualified to act as utility commissioners would probably not want to run for office, or if they did, may not be able to win. Many well qualified individuals may feel that the time, money and, effort necessary to get elected is (a) either beyond their resources or (b) not worth the reward being paid the commissioners. The electorate would probably place a commissioner who advocated low rates over one who did not. There is also a higher turnover rate of elected commissioners than appointed ones.

The public is concerned that appointed commissioners are controlled by public utilities. Primeaux and Mann point out that the public do not seem to realize that utilities could still control elected commissioners by raising more campaign funds than other interest groups in order to elect commissioners they (utilities) can control.[5]

A number of theories have been advanced to explain the development of regulation. Stigler's theory concludes that regulation provides benefits to producers at the expense of consumers.[6] If this is true, any attempt to deregulate this industry will be expected to produce a negative reaction in the market place. Pelzman has argued that regulators may choose to maximize their own politicial support for other objectives by balancing the demands of competing interest groups.[7] An increase in regulation provides a buffering effect that decreases the risk of regulated firm's activities and stock returns.

STUDIES

Hageman and Ratchford used a variance component model to examine what types of variables may affect the rate of return on equity allowed electric utilities.[8] In their model, they used economic variables such as risk, (standard deviation of returns), asset size, and interest rates at the time of the rate hearing. The political variables used were, compensation of commissioners, length of commissioners' terms, method of commissioner selection, and the number of commissioners on a regulatory commission. While both the risk and size of the firm were found to be related to the return on equity, the compensation of commissioners and method of selection were not.

Gormley sought to explain interstate differences in electoral participation.[9] He used political and economic control variables among others to measure the effects of variables such as the extent of professionalism and selection of commissioners. He found that there was less citizen participation in public utility commission proceedings with elected than appointed commissioners. Presumably, the citizen who helps elect the commissioner assumes that the elected official is working in his interest. This assumption reduces his activity in rate case proceedings. In states with appointed commissioners, the public does not assume that the commissioner is working for their benefit, and hence are more active proceedings. From a consumer's point of view, this may be an argument against elected commissioners, because of the false sense of security the consumer gains.

As mentioned earlier, Navarro pointed out that consumers are looking for short-term decreases in utility rates at the expense of increased long-term rates and a lower quality of service.[10] This increased cost to the consumer is caused by utilities' inability to invest capital in more efficient plants. Navarro attempted to establish a link between the regulatory climate in a state and the cost of capital. He used a model of the political, institutional, and ideological determinants included selection method, length of term, source of PUC funding, and degree of oil dependence. The institutional variables included salary structure, commissioners' qualifications, and expenditure level. He used the percentage of Democratic Party affiliation as his ideological variable.

Navarro found that the election of regulators increases the probability of an unfavorable regulatory ranking. He also found that below-average salary structures and expenditure levels, short commissioner terms, and a heavy reliance on general revenue funding will result in an unfavorable climate. Also, the requirement that commissioners be better qualified appears to improve the regulatory climate.

The fact that selection method was the variable with the greatest impact on the regulatory climate agrees with his original hypothesis. One of the policy implications that he derived from his study was that commissioners should be appointed rather than elected.

Mann and Primeaux hypothesized that elected commissioners would be associated with lower rates.[11] They used measures of utility price of three specific years 1967, 1973, and 1979, and ten measures of utility prices. These prices were made up of four sizes of residential bills, and three each of commercial and industrial bills. They used multiple regression analysis with the following variables: distribution cost per kilowatt-hour sales, tax payments per kilowatt-hour sales, production costs, and method of regulator selection.

There was no correlation in 1967 between elected commissioners and lower rates. In both 1973 and 1979, there was a significant correlation between higher prices and appointed commissioners. They were, however, unable to conclude on the basis of those results that commissioners should be elected. They conclude that other factors besides lower rates are important in determining which method of commissioner selection is best.

One of these factors is that election of commissioners may actually decrease public participation in the regulatory process since consumers may presume that elected commissioners will automatically act in their interests. Also, the flexibility of commissioners is not only constrained by external factors such as energy prices but also, by legislative and administrative procedures, judicial review, and federal regulation.

In their study, Harris and Navarro sought a correlation between the selection method and regulatory climate.[12] They criticized Mann and Primeaux's earlier study because the variables they used in their multiple regression analysis were not independent of one another. Many of them carried a selection method bias. Harris Navarro used a "reduced form" model and limited themselves to independent variables.

First, they calculated the average revenues per kilowatt-hour for each utility in their sample. Then they classified utilities by selection by process and region. They found no relation between selection method and lower rates.

Costello used new data in already established models to show that commissioner selection is not responsible for lower utility rates, and points out that there was no relation between elected commissioners and lower rates.[13]

Dubin and Navarro used a common data set to test separately the effect of regulatory climate on cost of equity and debt capital.[14] The variables they used related to financial, managerial and operating conditions, and regulatory climate. They found that regulatory climate affected both a utility's bond rating and its interest charges. They also measured the cost of equity capital and found a correlation between cost of capital and selection method. Selection methods, therefore, affected the cost of both debt capital and equity capital. They warn that a utility with little capital at high interest rates cannot invest in plans that would yield inexpensive, reliable power.

Davidson and Chandy analyzed the impact of several variables (including the commissioners election versus appointment variable) on the quality of regulatory environment in various states.[15] The dependent variable in their study was the average rank (average of the rank provided by Merrill Lynch, Argus, Value Line, Duff and Phelps, and Goldman Sachs) of state regulatory environment. The result of their regression analysis showed that the most important variable explaining regulatory quality variations was whether the utility commissioner was elected or appointed. States where commissioners were appointed had higher ranking than states where they were elected. Table 1 provides a summary of the findings from the research reported here.

SUMMARY

Table 2 categorizes the results of the 8 studies done over the period 1978 to 1983. Though these studies address different aspects of the effect (if any) of utility commissioner selection methods, we felt that we could put the results in a manner which is easy to interpret. It is interesting to note that three studies, by Navarro (1982), Dubin and Navarro (1983), and Davidson and Chandy (1983) indicate that appointing commissioners has a favorable impact (on regulatory climate, cost of capital and regulatory rank, respectively). While three other studies, by Hageman and Ratchford (1983), Harris and Navarro (1983) and Costello (1983), show that the commissioner selection method has no effect (on

TABLE 1

Study	Year	Results
Hageman and Ratchford	1978	Method of selecting commissioners did not significantly affect rate of return on equity.
Gormley	1981	Less citizen participation in public utility commission proceedings with elected commissioners than with appointed. No conclusive result on utility rates.
Navarro	1982	More likely to have unfavorable regulatory climate with elected public utility commissioner, than with appointed ones.
Mann and Primeaux	1983	Elected commissioners are not associated with lower rates. (1967 data) Elected commissioners associated with lower rates. (1973 data) Elected commissioners associated with lower rates. (1979 data) No conclusive result.
Harris and Navarro	1983	No effect on rates from commissioner selection method.
Costello	1983	No effect on rates from commissioner selection method.
Dubin and Navarro	1983	With elected commissioners lower bond ratings and higher cost of capital.
Davidson and Chandy	1983	With appointed commissioners, a higher regulatory quality was given to states.

TABLE 2
INFERENCES FROM DIFFERENT STUDIES

		Results			
Study	Year	No effect	Inconclusive	Elected	Appointed
Hageman and Ratchford	1978	X			
Gormley	1981		X		
Navarro	1982				X (Favorable)
Mann and Primeaux	1983		X		
Harris and Navarro	1983	X			
Costello	1983	X			
Dubin and Navarro	1983				X (Favorable)
Davidson and Chandy	1983				X (Favorable)

return on equity and utility rates). The results of the remaining two studies reported here are inconclusive.

So, which way do we go? Should we appoint or elect commissioners? Our review of the literature shows that, there is no clearcut answer! More research is needed to look at various aspects of the impact of commissioner selection method on investors, consumers, and utility firm's financial integrity.

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TAXATION AND EXHAUSTIBLE RESOURCES

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INTRODUCTION

Most exhaustible resources are often subject to a variety of taxation schemes. The welfare implications of such taxes on extractive activities have been examined at length in the literature on resource economics. Steele[1] and Hotelling[2] pioneered the issue of mine taxation in extractive industries where it was pointed out that a tax directed at rents will not affect the return to the producing companies. Steele indicated, among other things, that because of the different economic structures of mining and manufacturing industries, identical tax treatment may be discriminatory and that severance taxes tend to retard depletion of mineral resources. Related contributions have been made by Agria[3], Chapman[4], Baumol[5], Cox and Wright[6] and Gaffney.[7] In traditional analysis, the welfare cost of a tax on a commodity is shown to be related to the misallocation of resources caused by the tax; and its burden is distributed between the consumers and producers depending upon the elasticities of demand and supply. Since most exhaustible resources are highly inelastic in demand, the general presumption, based on traditional analysis, is that a large part of the tax is shifted to consumers, see, for example, Hotelling[8] and Dasgupta and Heal.[9] In a 1976 paper, Long[10] suggested that rents accruing to the resource should be paid and, since mineral resources are exhausted too quickly by private extractors, their extraction should be taxed more heavily to reduce the depletion rate.

The central focus of this analysis is to show that, in a competitive framework, the behavior of extractive firms in response to different taxation schemes is different from that of companies in other industries. Following Dasgupta and Heal[11] and using the technique of control theory, an analysis is made of tax impacts. Introduction of various revenue-raising taxes does alter some of the conclusions of the previous studies. In particular, it is shown that taxes on exhaustible resources are neither borne by the consumers nor do they have any welfare cost in terms of misallocation of resources.

The layout of the paper is as follows: the authors first formulate a basic model of resource extraction to represent the behavior of firms in extractive industries in a competitive framework without taxation, and the basic model is then extended to introduce production and profit taxes. Optimal time paths of extraction of resources are compared for cases with and without taxation to show that such taxes have no impact on the optimal extraction rates. The conclusions are set out in the final section.

THE BASIC MODEL OF OPTIMAL EXTRACTION RATES FOR AN EXHAUSTIBLE RESOURCE

In this section the authors analyze a model of optimal intertemporal supply of a depletable resource. The model is similar to the Fisher-Krutilla-Cicchetti[12] framework. This model yields straightforward analytical solutions and is known to possess a unique optimal control (Conners and Teichrow[13] and Clark.[14] To begin with, the authors assume that there is no uncertainty; all current and future prices and costs and the quantity of the resources are known. In addition, the producer is faced with a discount rate (r) which is assumed to be constant over time. A model which realistically represents the decision framework faced by a manager of, for example, an individual federal coal lease assume both costs and revenues as functions of the extraction rate. $C(v(t), t)$ is assumed to be the cost function which is permitted to be either of the neoclassical type or convex where $v(t)$ is the extraction rate. In a competitive industry, the optimization problem is to choose the extraction rate $v(t)$ over time to maximize

$$\int_0^T e^{-rt} \{p(t)\, v(t) - C\,[v(t), t]\}\, dt \tag{1}$$

subject to

$$\mathring{X}(t) = -v(t),\ X(T) = 0 \tag{2}$$

and

$$v(t) \geq 0,\ X(0) = X \tag{3}$$

where $p(t)$ is the exogenously determined price, $v(t)$ is the control, $X(t)$ is a state variable representing the resources remaining at t and T is the time of exhaustion. It should be noted that the change in remaining resources is represented by equation (2) which is simply the negative of the current extraction rate.

To solve this problem the authors form the Hamiltonian and find necessary conditions for an optimum. Letting λ be the adjoint variable for the state variable $X(t)$ gives:

$$H = e^{-rt} \{p(t)v(t) - C[v(t),t]\} - \lambda(t)v(t) \tag{4}$$

The necessary conditions for an interior solution are:

$$H_v = [p(t) - MC]\, e^{-rt} - \lambda(t) = 0. \tag{5}$$

$$-H_X = \mathring{\lambda} = 0 \tag{6}$$

$$\mathring{X} = -v(t) \tag{7}$$

where H_v and H_X are the partial derivatives with respect to v and X, $\mathring{\lambda} = D\lambda/dt$ and $MC = \partial C(t)/\partial v(t)$ which is equal to marginal cost of extraction. The value $\lambda(t)$ is the marginal increase in net present value at time (0) resulting from an additional unit of resource stock at time t. In this sense, $\lambda(t)$ can be equivalently interpreted as the price of the unextracted resource at time t, discounted to the initial point, time (0). It is the present value of foregone future economic rent due to the extraction of the resource today. This can also be thought of as the user cost as termed by Scott,[15] or the scarcity rent referred to by Solow.[16] It is now clear that $\lambda(t)$ is the marginal increase in net present value resulting from an additional unit of resource stock at time (t). According to Equation (5) the scarcity rent must equal the present value of the marginal profit for positive extraction to take place. The resulting optimal control both exists and is unique since the equation system can be solved for $\lambda(t)$, $v(t)$ and $X(t)$ given the boundary conditions, $X(0) = X$ and a boundary value for λ, i.e., $\lambda(t) \geq 0$ and $\lambda X(T) = 0$ (see Arrow and Kurz[17]). Furthermore the cost function is convex; therefore $\{p(t)\, v(t) - C\,[v(t),t]\}$ is concave. Equation (5) indicates that an extraction rate is chosen at each time such that the price of the extracted resource is just equal to the sum of the marginal extraction and user costs. That is, exhaustion is introduced via the resource constraint. Equation (6) indicates that the present values (at time 0) of the unextracted resource at each point in time are equal, i.e.,

$$w(t) = \lambda_0 e^{rt} \tag{8}$$

where w(t) is the scarcity rent (opportunity cost) at any time t and λ_0 is the initial price of the unextracted resource. The undiscounted current inground value grows exponentially at the interest rate r. These two equations are the necessary conditions for an optimal depletion path. The amount of resources remaining at any point can be determined by the equation system given by (5) and (6).

If p* is the competitive price of a unit of the stock of resource at any time, (t), then Equation (5) becomes

$$p^*(t) = MC + \lambda_0 e^{rt} \tag{9}$$

which shows that price draws away from marginal extraction cost, rising at a rate that approaches the rate of interest as the marginal profit (scarcity rent) component of price comes to dominate the extraction cost component. Next, from Equation (8) $dw/dt = r\lambda_0 e^{rt} = rw$. The result,

$$\frac{dw}{dt}\frac{1}{W} = \frac{\dot{W}}{W} = r, \tag{10}$$

implies that the future value of the scarcity rent rises at the rate of discount.

EXHAUSTIBLE RESOURCES AND TAXATION

Using the basic model developed above, various taxation schemes are imposed and their impacts are traced. The authors determine the optimal tax and any distortions or welfare effects of taxation in what follows. Specifically, they trace the impacts of the production and profits taxes.

A Production Tax on the Resource

Suppose a "specific tax," $S_t = S_0 e^{rt}$ is levied on the resource. A specific tax is a tax paid per unit of production, so this is equivalent to an increase in marginal extraction cost. The tax relation implies than an initial tax S_0 is set and is allowed to increase exponentially over time at the rate of interest, r. From the development of the previous section, the following condition holds

$$p^*(t) = MC + N + S_t \tag{11}$$

where $N = \lambda_0 e^{rt}$.

From (9), the relation

$$p^*(t) = \lambda_0 e^{rt} + S_0 e^{rt} + MC = (\lambda_0 + S_0)e^{rt} + MC, \tag{12}$$

holds. Since for an intertemporal competitive equilibrium the integral of sales over time should be equal to the initial stock; hence, the value of λ_0 will be that which allows the present value of total revenue over time to be equal to the initial value of the stock. It is worth emphasizing that for a competitive industry the price p(t) equates supply and demand at each time t. In this model, a typical firm produces v(t) units at time t, so let Q(t) denote the aggregate production of all firms. Suppose that the market demand curve for the flow of resource is given by $Q = D(p,t)$, since $D'(p) < 0$ hence $p(t) = D^{-1}[Q(t)] = B(Q)$ for all t. The socially optimum rate of extraction is determined by maximization of the present value of the consumer-cum-producer surplus over the given planning horizon which is given by

$$S = \int_{t=0}^{t} e^{-rt} \int_{0}^{Q} [B(s) - MC]\, ds\,(t)\, dt$$

or

$$S = \int_{0}^{t} e^{-rt} h(Q)\, dt \tag{13}$$

where

$$h(Q) = \int_{0}^{Q} [B(s) - MC]\, ds.$$

The maximization of (13) subject to (2) and (3) yields $e^{-rt} h'(Q) = \lambda(t)$, where the marginal social valuation of the resource, h′ (Q), is the market clearing spot price of the resource. Hence the price that equates supply and demand is the price given in (11).

In the absence of the tax, the following relation holds

$$p^*(t) = MC + \lambda_o^* e^{rt} \tag{14}$$

where λ_o^* is the initial price of the unextracted resource which corresponds to p^*. A comparison of (12) and (14) suggests that such a tax scheme does not introduce any distortion, since the consumption price of the resource at any time, is the same in both cases. That is

$$\lambda_o^* = \lambda_o + S_o \tag{15}$$

the initial price of the unextracted resource accounts for the rents that could be taxed. However, as the tax S_o, is increased, the value of the deposit is decreased.

The policy implication of these conclusions is that if the resource is under public ownership, then the government could introduce a tax schedule of the form $S_t = S_o e^{rt}$ which does not cause overextraction or underextraction. Since this scheme does not affect the production rate, the scheme is the optimal tax.

A Tax on Profits

The profits tax is a form of taxation which in conventional analysis affects the pattern of resource exhaustion. Let η_t be the rate of tax on the rents accuring to a resource owner, where $\eta_t = p^*(t) - MC$. The after-tax price per unit for the resource is then given by

$$p^*(t) = MC + \lambda(t) - \eta(t), \text{ For } \lambda(t) = \lambda_o^* e^{rt} \tag{16}$$

Then,

$$\begin{aligned} \lambda(t) &= p^*(t) - MC - \eta_t[p_t^*(t) - MC] \\ &= p^*(t) - MC - \eta_t p^*(t) - \eta_t MC \\ &= [p^*(t) - MC][1 - \eta_t] \end{aligned} \tag{17}$$

Equation (10) must hold under conditions of a competitive equilibrium. This implies that

$$\begin{aligned} \dot{W}(t)/W(t) &= r \\ &= \frac{\partial p^*(t)/\partial t - \partial p^*(t)/\partial t \cdot \eta_t - \partial \eta_t/\partial t \, p^*(t) + \partial \eta_t/\partial t \cdot MC}{[p^*(t) - MC](1 - \eta_t)} \\ &= \frac{p^*(t) - p^*(t)\eta_t - \eta_t p^*(t) + \eta_t MC}{[p^*(t) - MC](1 - \eta_t)} \\ &= \frac{p^*(t)(1 - \eta_t) - \eta_t[p^*(t) - \eta_t]}{[p^*(t) - MC](1 - \eta_t)} \end{aligned} \tag{18}$$

If the tax rate is constant $\dot{\eta}_t = 0$, then (18) can be reduced to

$$r = \dot{p}^*(t)/[p^*(t) - MC] \tag{19}$$

Integration of (19) yields,

$$p^*(t) = MC + \bar{\lambda}_o^* e^{rt} \tag{20}$$

where $\bar{\lambda}_o^* = (1 - \eta_t)\lambda_o^*$. The relation (20) is identical to (14) which implies that the imposition of a tax on profit does not change the pattern of resource use. However, the optimal value of the resource in the ground is decreased by $(1 - \eta_t)$.

CONCLUDING REMARKS

A comparison of the optimal extraction paths of exhaustible resources with and without taxes shows that, in the competitive framework, taxation does not affect the rate of extraction, nor does it change the optimal price paid by consumers. The shadow price of the resource remaining is the scarcity rent which is also unaffected by taxes. The price paid by consumers, in the optimal situation is the marginal cost of extraction plus the shadow price of the resource underground. Therefore, taxes imposed on extractive firms are borne by the firms and are paid out of the economic rent which is pure surplus.

These conclusions are in conformity with the conclusions which led to the proposal of a single tax as advocated by Henry George.[18] This neutrality of taxation in terms of resource allocation as derived also depends on the implicit assumption that the total stock of the exhaustive resource is known. If the stock is not fully known, or the quality of resource deposits is unknown, then taxation, as imposed in the analysis, serves as a disincentive to rent seeking activities and the discovery of new resource deposits might well decline over time under such taxation policies. The analysis is therefore relevant only to the optimal extraction rate associated with the known exhaustible resource base.

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SELECTED ARKANSAS AND U.S. ECONOMIC INDICATORS

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THE OUTLOOK AT MID 1986

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In an earlier issue of the *Review*, the Economy of Arkansas was described as "adrift" in 1986. As more data for the year accumulate, this earlier conclusion is further substantiated.

Cash receipts from farm marketings remained at depressed levels in the first half of the year. Declines in energy, money and some other costs will moderate slightly the hard pressed economic conditions of the agricultural sector. Also, it should be noted that the agricultural industry in western Arkansas is generally in better economic condition than that in the eastern part of the state.

Third quarter total employment will average slightly more than that of the second quarter and will likely be in excess of the recent high achieved in the fourth quarter of 1985. However, growth in the civilian labor force has outstripped that of employment so that the unemployment rates seasonally adjusted, in June, July and August were in excess of nine percent. In addition, it is worth noting that manufacturing wage and salary employment in August was about 700 jobs less than in January of this year.

Construction activity, seasonally adjusted, was down substantially in the second quarter. The decline was of such magnitude that the possibility of some statistical aberration should at least be considered. If these data are established as correct, they reflect a return of construction activity to the recessionary levels of 1982.

As noted at the outset, "adrift" seems to be an appropriate descriptive term for the Arkansas economy at this juncture. There are both strengths and weaknesses but the net result seems to be an annualized growth rate in personal income of less than five percent. While that is a real growth rate of about three percent, it cannot be considered robust. The outlook, at least into early 1987, is for more of the same — potential growth, but at a relatively low rate.

LABOR FORCE AND EMPLOYMENT
ARKANSAS

(Seasonally adjusted)

Year	Month	Civilian Labor Force (Units)	Total Employment (Units)	Agricultural Employment (Units)	Manufacturing Wage and Salary Employment (Units)	Unemployment Rate (Percent)
1980		999,000	923,000	65,100	210,050	7.6
1981		1,030,000	936,000	64,100	212,100	9.1
1982		1,018,000	919,000	63,440	195,625	9.7
1983		1,025,700	920,730	62,395	199,880	9.5
1984		1,044,000	951,000	61,600	209,750	8.9
1985		1,051,180	960,100	46,250	210,317	8.6
	Aug.	1,050,720	961,630	45,900	210,020	8.3
	Sept.	1,053,730	963,180	45,620	209,220	8.4
	Oct.	1,053,170	963,120	45,460	209,170	8.4
	Nov.	1,059,800	967,580	45,540	209,850	8.6
	Dec.	1,067,630	973,260	45,540	210,880	8.8
1986						
	Jan.	1,061,260	976,150	46,180	213,850	8.3
	Feb.	1,057,010	973,570	46,280	213,950	8.2
	March	1,048,294	965,017	46,307	213,717	8.0
	April	1,046,741	960,435	46,293	213,010	8.2
	May	1,046,726	961,633	45,905	214,100	8.1
	June	1,057,931	964,198	45,596	212,852	9.2
	July	1,069,571	970,811	45,368	213,733	9.1
	Aug.	1,071,245	971,380	45,149	213,168	9.2

PERSONAL INCOME

Quarterly Changes in Personal Income, Arkansas and United States

(Seasonally adjusted, Percent)

	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV	1985 Q-IV thru 1986 Q-I	1986 Q-I thru 1986 Q-II
Arkansas	+ 2.9	− 2.2	+ 0.1	+ 1.8	+ 2.2	+ 1.2
United States	+ 2.0	+ 1.4	+ 0.7	+ 1.8	+ 1.5	+ 1.6

Personal Income in Arkansas

(Seasonally adjusted, annual rate, Millions of dollars)

	1979	1980	1981	1982	1983	1984	1985	1986
Quarter								
Jan-Mar	14,640	15,892	17,862	19,191	19,957	22,406	24,310	24,774
Apr-Jun	14,774	15,851	18,078	19,155	20,383	22,410	23,784	25,077^E
Jul-Sep	15,208	16,527	18,811	19,344	20,612	23,041	23,818	
Oct-Dec	15,640	17,005	18,912	19,812	21,173	23,614	24,249	
Annual	15,066	16,319	18,416	19,376	20,531	22,868	24,040	

^{E}Estimated

INDUSTRIAL PRODUCTION

Quarterly Changes in Industrial Production
Arkansas and United States

(Seasonally adjusted, Percent)

	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV	1985 Q-IV thru 1986 Q-I	1986 Q-I thru 1986 Q-II
Arkansas	− 0.3	+ 0.8	+ 1.2	+ 1.2	+ 0.9
United States	+ 0.3	+ 0.5	+ 0.5	+ 0.1	− 1.0

Value Added by Manufacture in Arkansas

(Seasonally adjusted, annual rate, Millions of dollars)

	1979	1980	1981	1982	1983	1984	1985	1986
Quarter								
Jan-Mar	5,902.0	6,553.6	7,167.6	7,474.8	7,884.9	8,840.2	9,310.2	9.577.4
Apr-Jun	6,052.2	6,415.0	7,388.1	7,569.1	8,131.9	8,956.2	9,282.0	9,663.1
Jul-Sep	6,135.9	6,688.3	7,601.8	7,581.8	8,398.0	9,075.0	9,352.1	
Oct-Dec	6,299.6	6,942.7	7,589.5	7,746.9	8,522.0	9,185.9	9,463.2	
Annual	6,097.4	6,649.9	7,436.8	7,593.2	8,234.2	9,014.3	9,351.9	

CASH RECEIPTS FROM FARM MARKETINGS

Quarterly Changes in Cash Receipts, Arkansas and United States

(Seasonally adjusted, Percent)

	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV	1985 Q-IV thru 1986 Q-I	1986 Q-I thru 1986 Q-II
Arkansas	+ 2.2	− 0.7	− 5.3	+ 7.7	− 12.4	− 4.3
United States	− 5.1	− 4.4	+ 0.2	+ 22.3	− 19.2	NA

NA - not available

Cash Receipts from Farm Marketings in Arkansas

(Seasonally adjusted, annual rate, Thousands of dollars)

	1979	1980	1981	1982	1983	1984	1985	1986
Quarter								
Jan-Mar	3,199,192	3,506,548	3,005,850	3,367,339	2,696,208	3,412,423	3,307,857	2,935,802
Apr-Jun	3,050,693	2,848,242	3,690,087	3,650,780	2,583,833	3,262,655	3,285,170	2,810,494
Jul-Sep	3,759,532	3,227,283	3,735,907	2,781,091	3,057,172	3,261,541	3,109,958	
Oct-Dec	3,245,303	2,855,084	3,173,621	3,275,041	3,023,897	3,235,944	3,349,909	
Annual	3,063,680	3,109,289	3,401,366	3,268,563	2,840,278	3,293,143	3,263,223	

WATERBORNE COMMERCE:
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM

Quarterly Changes in Total and Internal Tonnages

(Seasonally adjusted, Percent)

	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV	1985 Q-IV thru 1986 Q-I	1986 Q-I thru 1986 Q-II
Total	− 17.1	+ 13.0	+ 10.8	− 18.5	+ 66.1	− 27.1
Internal	− 19.4	+ 65.9	+ 8.0	− 14.2	+ 86.7	− 30.8

Freight Traffic

(Seasonally adjusted, annual rate, Thousands of short tons)

Time Period		Traffic Tonnages			
		Inbound	Outbound	Internal	Total[1]
1979		2,026	3,456	2,932	8,926
1980		1,611	4,643	2,408	9,133
1981		1,564	5,684	1,741	9,446
1982		1,520	4,611	1,561	8,258
1983		1,918	3,905	1,904	8,017
1984		2,128	4,264	2,433	9,490
1985[2]		2,103	3,191	2,521	8,335
	Jul-Sep	2,194	3,649	2,916	9,444
	Oct-Dec	1,846	2,920	2,501	7,700
1986	Jan-Mar	3,240	4,636	4,671	12,786
	Apr-Jun	2,369	2,917	3,233	9,319

[1] Total tonnage includes "through traffic."

[2] Sum of quarters does not equal annual totals because of moving seasonal adjustment factor.

ARKANSAS CONSTRUCTION CONTRACTS

Residential Construction Contracts

(Seasonally adjusted, annual rate, Thousands of dollars)

	1979	1980	1981	1982	1983	1984	1985	1986
Quarter								
Jan-Mar	838,008	613,040	550,568	511,940	895,484	1,044,788	791,824	873,188
Apr-Jun	645,112	564,516	642,712	598,212	919,996	975,436	775,466	652,956
Jul-Sep	756,032	696,460	548,380	689,232	908,188	900,232	701,506	
Oct-Dec	575,136	686,040	585,608	780,880	901,384	773,368	795,934	
Annual	706,530	664,550	632,800	648,130	906,260	917,550	766,182	

Nonresidential Construction Contracts

(Seasonally adjusted, annual rate, Thousands of dollars)

	1979	1980	1981	1982	1983	1984	1985	1986
Quarter								
Jan-Mar	371,300	289,236	356,916	376,064	269,324	417,860	368,124	445,068
Apr-Jun	420,520	349,804	278,808	210,008	353,504	437,076	411,933	331,551
Jul-Sep	296,012	396,316	259,592	317,844	389,684	543,684	477,483	
Oct-Dec	441,984	390,148	311,048	220,548	473,460	481,360	563,974	
Annual	381,809	355,100	302,100	279,600	370,100	467,700	455,378	

ARKANSAS LABOR FORCE ESTIMATES
August 1986, Not Seasonally Adjusted

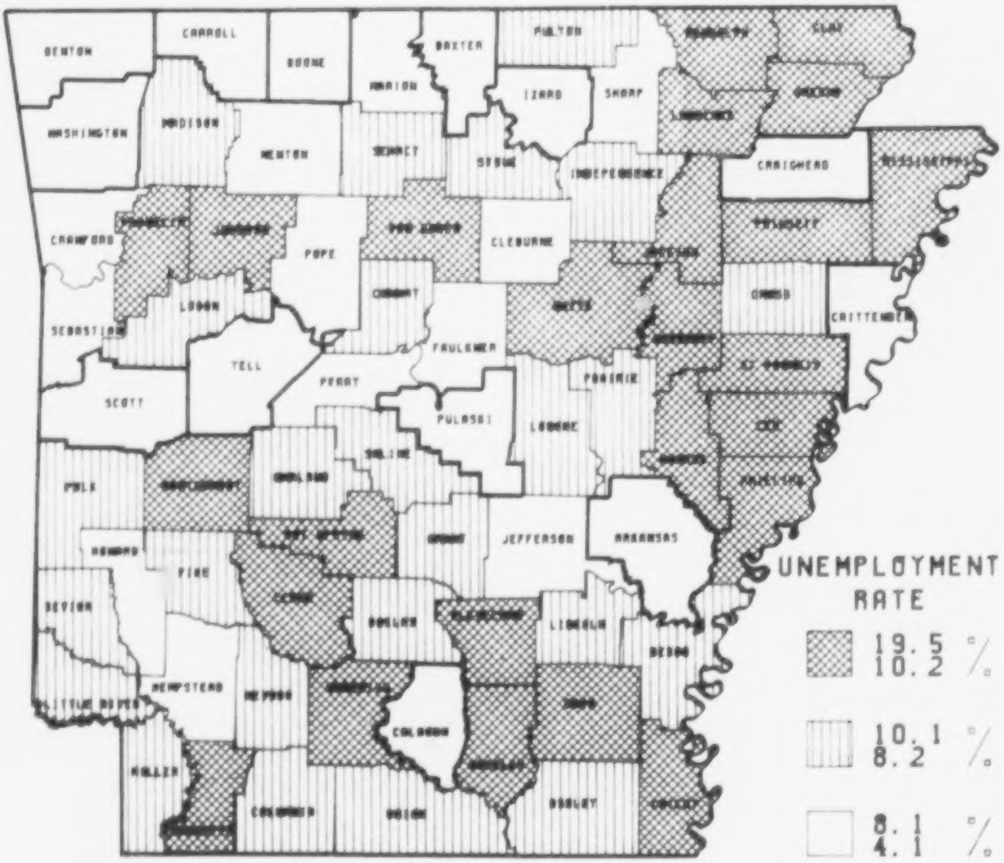
Area	Civilian Labor Force	Unemployment Rate	Total Employment
UNITED STATES	119,470,000	6.7	111,515,000
STATE OF ARKANSAS	1,081,300	8.5	989,300
Fayetteville-Springdale MSA	54,550	4.9	51,875
Fort Smith MSA	86,100	7.2	79,925
Little Rock-North Little Rock MSA	249,500	7.1	231,675
Pine Bluff MSA	37,800	8.1	34,725

County	Civilian Labor Force	Unemployment Rate	Total Employment	County	Civilian Labor Force	Unemployment Rate	Total Employment
Arkansas	10,750	6.5	10,050	Lee	4,700	16.5	3,925
Ashley	12,525	9.6	11,325	Lincoln	4,050	9.9	3,650
Baxter	10,900	6.2	10,225	Little River	5,475	10.0	4,925
Benton	45,775	5.7	43,175	Logan	9,275	10.0	8,350
Boone	14,025	5.9	13,200	Lonoke	18,975	9.0	17,275
Bradley	5,050	11.4	4,475	Madison	4,850	8.2	4,450
Calhoun	4,850	5.7	4,575	Marion	5,825	7.3	5,400
Carroll	11,625	4.1	11,150	Miller	18,950	8.2	17,400
Chicot	6,050	14.0	5,200	Mississippi	21,825	15.6	18,425
Clark	9,950	10.6	8,900	Monroe	4,975	12.6	4,350
Clay	8,500	11.5	7,525	Montgomery	3,175	12.6	2,775
Cleburne	8,375	7.8	7,725	Nevada	4,225	8.9	3,850
Cleveland	2,700	10.2	2,425	Newton	4,100	7.9	3,775
Columbia	12,575	9.5	11,375	Ouachita	13,525	10.9	12,050
Conway	7,550	9.3	6,850	Perry	4,225	7.7	3,900
Craighead	32,925	6.5	30,800	Phillips	10,875	16.3	9,100
Crawford	19,675	7.5	18,200	Pike	4,000	10.0	3,600
Crittenden	24,650	6.1	23,150	Poinsett	10,775	10.2	9,675
Cross	8,175	8.6	7,475	Polk	6,800	9.9	6,125
Dallas	4,175	8.4	3,825	Pope	21,725	7.7	20,050
Desha	7,325	9.9	6,600	Prairie	5,075	8.9	4,625
Drew	8,050	11.2	7,150	Pulaski	176,625	6.7	164,825
Faulkner	25,400	7.9	23,400	Randolph	7,225	12.8	6,300
Franklin	6,050	10.3	5,425	St. Francis	12,300	19.5	9,900
Fulton	3,925	8.3	3,600	Saline	28,500	8.2	26,175
Garland	31,025	9.0	28,225	Scott	5,575	4.5	5,325
Grant	5,725	9.2	5,200	Searcy	3,300	9.8	2,975
Greene	13,925	10.6	12,450	Sebastian	48,425	7.4	44,825
Hempstead	10,300	7.8	9,500	Sevier	6,700	9.0	6,100
Hot Spring	11,175	15.9	9,400	Sharp	6,200	7.7	5,725
Howard	6,075	7.4	5,625	Stone	4,175	8.4	3,825
Independence	14,800	9.0	13,475	Union	21,275	10.1	19,125
Izard	4,400	5.7	4,150	Van Buren	5,800	10.3	5,200
Jackson	8,900	14.0	7,650	Washington	54,550	4.9	51,875
Jefferson	37,800	8.1	34,725	White	23,550	10.5	21,075
Johnson	8,475	15.9	7,125	Woodruff	4,475	10.6	4,000
Lafayette	3,475	12.9	3,025	Yell	9,150	5.7	8,625
Lawrence	8,450	12.4	7,400				

Source: The Research and Statistics Section, Arkansas Employment Security Division.

LABOR FORCE ESTIMATES
AUGUST 1986

IN AUGUST, ARKANSAS' CIVILIAN LABOR FORCE INCREASED 3,500 TO TOTAL 1,047,900. TOTAL EMPLOYMENT INCREASED 7,800 TO TOTAL 989,300. UNEMPLOYMENT FELL 4,700 TO TOTAL 92,000. OF THE 75 COUNTIES, CARROLL HAD THE LOWEST UNEMPLOYMENT RATE AT 4.1 PERCENT AND ST. FRANCIS, THE HIGHEST AT 19.5 PERCENT. ALSO, THE UNEMPLOYMENT RATES IN 44 COUNTIES EQUALLED OR EXCEEDED THE STATE RATE. FOR THE MSAS, FAYETTEVILLE - SPRINGDALE HAD THE LOWEST UNEMPLOYMENT RATE AT 4.9 PERCENT AND FORT BLUFF HAD THE HIGHEST RATE AT 8.1 PERCENT. THE RATES FOR THE LITTLE ROCK-NORTH LITTLE ROCK AND THE FORT SMITH MSAS WERE 7.1 AND 7.2 PERCENT, RESPECTIVELY.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SEARCY
STONE
INDEPENDENCE
CRAIGHEAD
MISSISSIPPI
CRAWFORD
FRANKLIN
JOHNSON
POPE
VAN BUREN
CLEBURNE
JACKSON
POINSETT
CROSS
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FAULKNER
ST. FRANCIS
SCOTT
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PERRY
PRAIRIE
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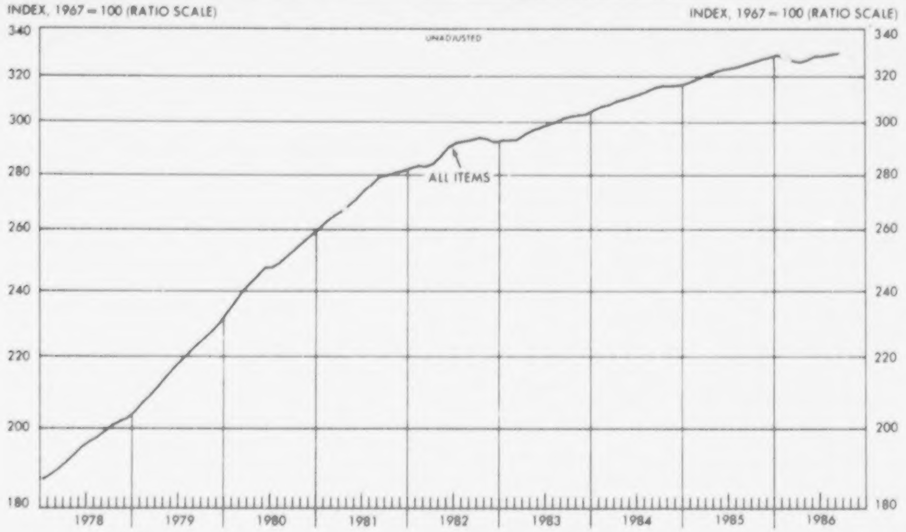
LONOKE
LEE
MONROE
PHILLIPS
POLK
MONTGOMERY
GARLAND
SALINE
HOT SPRING
GRANT
JEFFERSON
ARKANSAS
HOWARD
PIKE
SEVIER
CLARK
DALLAS
CLEVELAND
LINCOLN
DESHA
HEMPSTEAD
NEVADA
OUACHITA
CALHOUN
BRADLEY
DREW
LITTLE RIVER
MILLER
LAFAYETTE
COLUMBIA
UNION
ASHLEY
CHICOT
UNEMPLOYMENT RATE
19.5 % 10.2 %
10.1 % 8.2 %
8.1 % 4.1 %

BOUNDARY LINES OF COUNTIES HAVING AN UNEMPLOYMENT RATE LESS THAN OR EQUAL TO THE NATIONAL AVERAGE OF 6.7 %

UNIVERSITY OF ARKANSAS COMPUTER GENERATED MAP

CONSUMER PRICES—ALL URBAN CONSUMERS

In September, the consumer price index for all urban consumers rose 0.3 percent, seasonally adjusted (0.5 percent not seasonally adjusted). The index was 1.8 percent above its year-earlier level.



SEE NOTE ON TABLE BELOW
SOURCE: DEPARTMENT OF LABOR

COUNCIL OF ECONOMIC ADVISERS

[1967 = 100, except as noted; monthly data seasonally adjusted, except as noted by NSA]

Period	All items ¹ NSA	Food	Housing						Apparel and upkeep	Transportation			Medical care	Energy ²	All items less food, energy, and shelter
			Total ¹	Shelter				Fuel and other utilities		Total ¹	New cars	Motor fuel			
				Total	Renters' costs (Dec 1982 = 100)	Homeowners' costs (Dec 1982 = 100)	Maintenance and repairs NSA								
Rel. imp. ³	*100.0*	*18.5*	*37.9*	*22.3*	*7.3*	*14.4*	*0.5*	*8.1*	*5.0*	*21.4*	*3.4*	*5.5*	*6.5*	*11.3*	*48.0*
1978	195.4	211.4	202.8	210.4			233.0	216.0	159.6	185.5	153.8	196.3	219.4	220.4	179.1
1979	217.4	234.5	227.6	239.7			256.4	239.3	166.6	212.0	166.0	265.6	239.7	275.9	191.5
1980	246.8	254.6	263.3	281.7			285.7	278.6	178.4	249.7	179.3	369.1	265.9	361.1	208.3
1981	272.4	274.6	293.5	314.7			314.4	319.2	186.9	280.0	190.2	410.9	294.5	410.0	228.1
1982	289.1	285.7	314.7	337.0			334.1	350.8	191.8	291.5	197.6	389.4	328.7	416.1	245.6
1583	298.4	291.7	323.1	344.8	103.0	102.5	346.3	370.3	196.5	298.4	202.6	376.4	357.3	419.3	258.4
1984	311.1	302.9	336.5	361.7	108.6	107.3	359.2	387.3	200.2	311.7	208.5	370.7	379.5	423.6	271.2
1985	322.2	309.8	349.9	382.0	115.4	113.1	368.9	393.6	206.0	319.9	215.2	373.8	403.1	426.5	281.6
1985: Sept	324.5	310.7	352.2	386.1	116.7	114.5	368.7	394.4	206.8	319.3	216.2	375.2	409.0	426.8	282.6
Oct	325.5	311.1	353.3	387.9	117.5	114.9	368.5	393.7	207.7	320.5	217.0	374.3	410.9	425.8	234.1
Nov	326.6	313.2	355.2	390.5	118.2	115.7	372.7	395.4	208.4	322.6	217.7	377.4	413.0	428.4	285.4
Dec	327.4	315.2	356.2	391.9	118.5	116.2	373.7	396.5	208.3	323.9	218.4	379.4	415.7	430.3	286.2
1986: Jan	328.4	315.9	357.1	393.3	118.8	116.6	379.1	397.2	207.7	325.5	218.6	380.1	417.5	430.8	287.5
Feb	327.5	313.8	356.8	394.8	119.2	117.0	379.6	392.4	206.6	320.9	219.5	357.2	420.4	414.3	288.0
Mar	326.0	314.1	357.5	397.3	119.8	118.0	367.5	388.4	206.3	311.8	219.9	314.8	424.5	387.5	288.6
Apr	325.3	315.0	358.5	400.7	121.1	118.9	367.6	385.7	206.9	304.0	221.2	279.5	427.2	365.2	289.1
May	326.3	316.4	358.2	401.0	121.2	119.1	367.1	382.3	206.5	304.9	223.0	286.4	429.8	366.2	289.4
June	327.9	316.7	360.1	401.8	121.7	119.1	366.6	388.9	205.8	307.4	224.4	295.0	432.8	374.8	290.4
July	328.0	319.5	360.2	403.6	122.5	119.6	369.2	383.4	206.2	303.6	225.2	275.5	435.0	359.6	291.3
Aug	328.6	322.5	361.1	404.8	122.7	119.9	376.4	383.6	207.7	300.8	225.8	262.7	437.4	352.7	292.1
Sept	330.2	323.9	361.9	406.7	123.2	120.6	376.2	381.8	209.4	302.0	226.3	269.2	440.1	355.0	292.7

[1] Includes items not shown separately.

[2] Fuel oil, coal, and bottled gas; gas (piped) and electricity; and motor fuel. Motor oil, coolant, etc. also included through 1982.

[3] Relative importance, December 1985.

NOTE.—Data beginning 1983 incorporate a rental equivalence measure for homeownership costs and therefore are not strictly comparable with figures for earlier periods.

Source: Department of Labor, Bureau of Labor Statistics.

ERRATA

Figures 1, 2, 3, and 4 were omitted from the article "The Influence of Drought and the Success of the Payments-in-Kind (PIK) Program," pages 7 through 12 in the Volume 19, Number 2 issue of the *Arkansas Business and Economic Review*. Those figures are included on the next two pages.

Figure 1

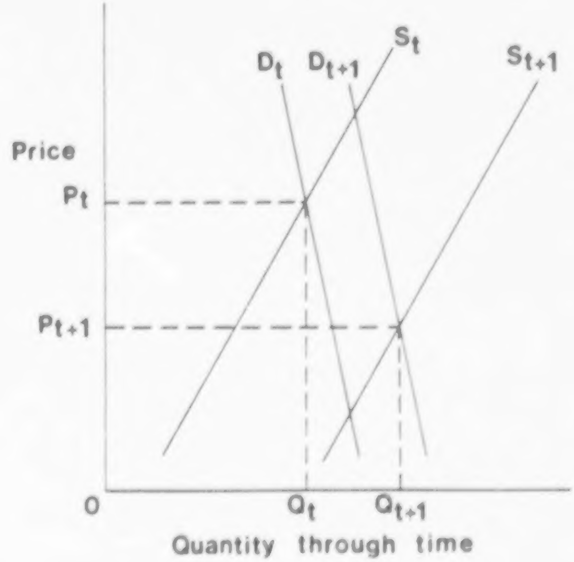


Figure 2

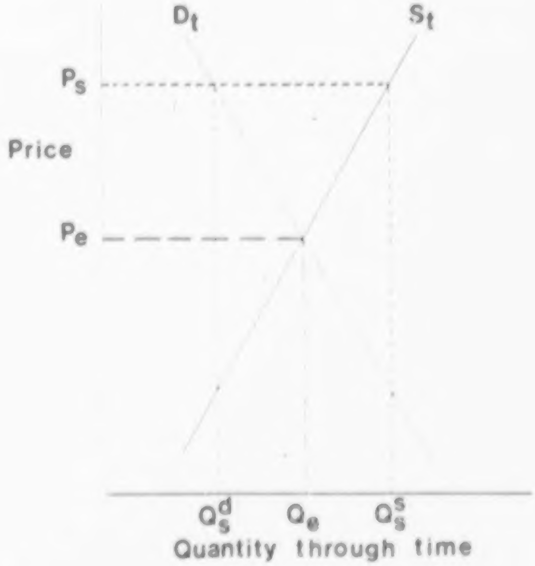


Figure 3

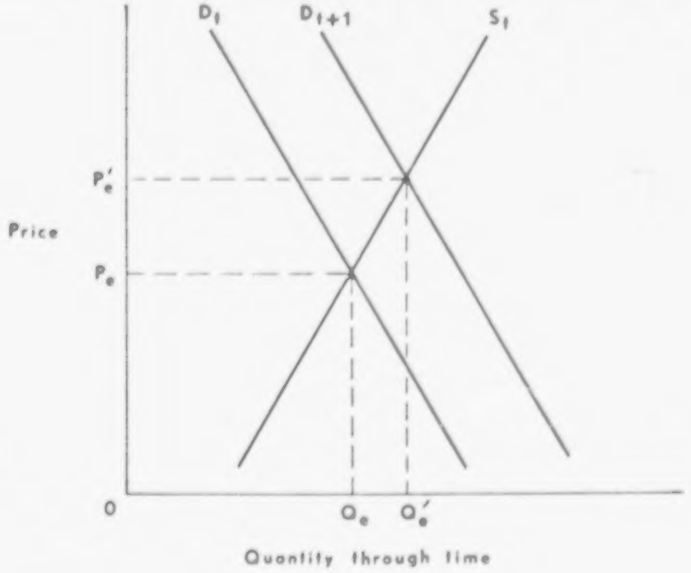
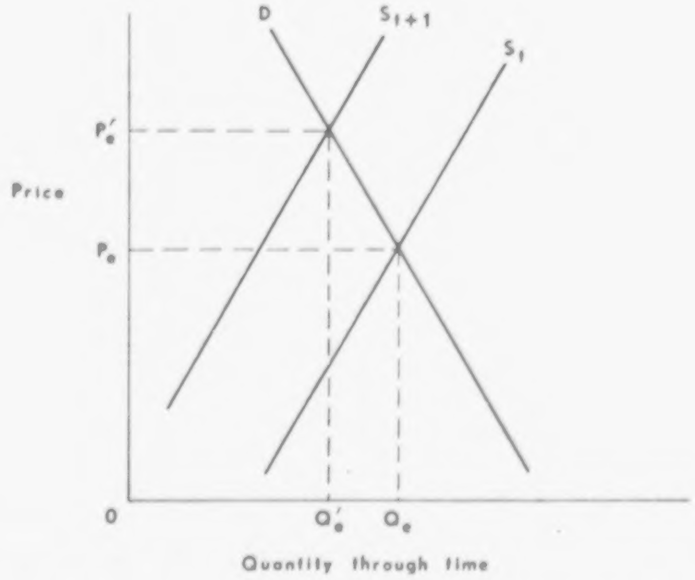


Figure 4



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The Arkansas Business and Economic Review is dedicated to information relevant to the business and economic environment of Arkansas. Thus, the editor invites manuscripts in the following general subject areas for consideration for publication:

1. Problems and issues of the Arkansas business community and economy;
2. Regional and industrial problems that have implications for the Arkansas economic community;
3. National business and economic issues of general interest to the people of Arkansas;
4. Business and economic theory; and
5. Articles of interest to both practitioners and academics in business.

Each manuscript should be double-spaced and submitted in triplicate. The length of the article should not exceed 20 pages including tables, appendices and references. Each chart or table should be camera ready, that is, an original on a separate page. References are to be listed on a separate page at the end of the submitted article and are to be numbered sequentially in order of textual citation with a corresponding superscript at the point of reference. The listing will be used as "Endnotes" to the published article and should be in footnote format.

For example, as a minimum, each endnote item will indicate:

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Arkansas Business and Economic Review

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contents

Can Hedging Risk be Reduced for Arkansas Elevators and Processors with a Gulf Soybean Futures Contract?

Administrative Burdens of Arkansas County Growth and of Stagnation: Some Statistical Indicators

The Effects of Changing Agriculture Conditions on Commercial Banks in Arkansas

Selected Arkansas and U.S. Economic Indicators

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CAN HEDGING RISK BE REDUCED FOR ARKANSAS ELEVATORS AND PROCESSORS WITH A GULF SOYBEAN FUTURES CONTRACT?

Emmett W. Elam
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INTRODUCTION

This research was undertaken to determine whether hedging risk for Arkansas elevators and processors could be reduced if hedges were placed in a Gulf soybean futures contract rather than the existing Chicago contract. Currently, only a Chicago soybean futures contract is trading. This contract calls for delivery of soybeans in the Chicago area. An effort was made by the New Orleans Commodity Exchange to establish a Gulf soybean futures contract.[1] There was very little trading interest, however. Without sufficient trading volume, grain elevator operators and processors could not use the contract to hedge. Consequently, the contract was not a success and trading ceased after about 18 months.

In spite of the failure of the New Orleans Commodity Exchange contract, a case can be made for a Gulf soybean futures contract based on the importance of export markets supplied mostly through the Gulf ports. Over the period 1980-84, forty-two percent of U.S. soybean production was exported.[2] Of the 1980-84 soybean exports, 81 percent was shipped through the Gulf ports.[3] This implies that more than one third of the 1980-84 soybean production was priced based on Gulf ports. A substantial proportion of the soybeans that are sold for export are priced before shipment. Most of these forward commitments are hedged in the Chicago futures market. If these hedges could be placed in a Gulf contract, the basis risk should be less since the pricing point for the forward sale would also be the delivery point for the contract. Thus, if a Gulf contract were available, most export sales of soybeans could be more effectively hedged.

The benefits of a Gulf contract extend beyond this, however. Grain elevators and processors in Arkansas should be able to use a Gulf soybean futures contract to reduce basis risk on soybeans in storage and bought on forward contracts. That is, the price of soybeans in Arkansas is connected to the Gulf price because soybeans move from Arkansas to the Gulf for export.[4] There is no direct connection, however, between the price of soybeans in Arkansas and Chicago. Virtually any factor that relates to soybean pricing (e.g., world weather patterns, politics, monetary and fiscal policy) can affect this relationship. The fact that so many factors affect the relationship between Arkansas and Chicago prices suggests that Arkansas and Chicago prices are not as closely connected as Arkansas and Gulf prices. Because hedging risk depends on the relationship between cash and futures prices, the more direct connection between Arkansas and Gulf prices should mean that hedging risk for Arkansas elevators and processors will be less with a Gulf than with a Chicago soybean futures contract.

The layout of the paper is as follows. The first section examines hedging (or basis) risk. The second section discusses the data and methodology used to compare hedging risk in Gulf and Chicago soybean futures contracts. The third section compares the relative hedging risk associated with Arkansas soybean positions hedged in a Gulf versus Chicago contract. The hedging risk is that associated with positions taken at Memphis and six locations in Arkansas. The fourth section points out the specific problems in establishing Gulf soybean futures contracts. The final section provides conclusions.

HEDGING RISK

A hedge is a position taken in the futures market that serves as a temporary substitute for a cash transaction to be made later. For example, if a grain elevator buys soybeans from a farmer, a sale of futures serves as a substitute for the eventual sale of the cash soybeans. The position in futures should be equal in size and opposite to the existing cash position. That is, if 5,000 bushels of soybeans are purchased, the futures position should be a sale of 5,000 bushels of soybean futures.

A primary function of hedging is to shift risk. For example, assume that a grain elevator operator in Arkansas buys soybeans from a farmer. To protect against a decline in price, the elevator operator sells soybean futures equivalent to the number of bushels of cash soybeans purchased from the farmer. Assume that the soybean futures are sold at $6.00 per bushel (Table 1). The price established by the hedge depends on the basis when the hedge is lifted. The basis is the difference between the cash and futures prices. If the elevator operator expects the basis to be −$0.50 per bushel when the soybeans are eventually sold, a price of $5.50 per bushel has been established for the soybeans purchased from the farmer. By hedging, the grain elevator operator has protected himself from a decline in the price of soybeans. If the cash price when the soybeans are sold is $0.50 per bushel under the futures price, the established (or target) price will be achieved.

In practice, however, the basis cannot be precisely estimated when the soybeans are hedged. This is referred to in the trade as basis risk. The effect of a change in the basis is illustrated by continuing the above example. Assume that the elevator operator sells the soybeans at $5.25 per bushel and buys back the soybean futures position at $5.85 per bushel (Table 1). Since the futures position is purchased at a lower price than when it was sold, there is a gain of 15¢ per bushel. The 15¢ gain plus the $5.25 for the cash soybeans gives a net selling price of $5.40 per bushel. This is 10¢ per bushel less than the elevator operator's target price of $5.50 per bushel.

Differences between the net and target prices for a hedge are the result of unanticipated changes in the basis. In the above example, the expected basis was −$0.50

TABLE 1
HEDGING RISK EXAMPLE

Date	Cash	Futures	Basis = Cash-Futures
When purchased	Expected selling price of $5.50	Sells at $6.00	−$0.50
When sold	Sells at $5.25	Bys at $5.85 Gain $0.15	−$0.60
Effective net selling price: $5.25 cash selling price 0.15 gain on futures $5.40 net price			

per bushel when the hedge was placed. The basis actually turned out to be − $0.60. A wider basis means that the cash price has fallen more than the futures price. Therefore, the loss in the cash position ($0.25) is not totally offset by the gain in the futures position ($0.15). The result is a net selling price of $5.40 per bushel rather than the expected $5.50 selling price. The difference between the net and target prices is the same as the difference between the actual basis and expected basis (− $0.10 per bushel).

METHODOLOGY AND DATA

The example in the previous section illustrates that hedging risk can be measured by either the variation of the difference between net and target prices or the variation in the basis. If the expected basis is taken as the average difference between cash and futures prices, the variation of the actual basis compared to the average (or expected) basis is a measure of hedging risk.

To calculate a basis requires futures prices. But, a historical series of Gulf futures prices was not available because a Gulf soybean futures contract traded less than a year and a half. In this research, Gulf futures prices were approximated by Gulf cash prices. While there is some difference between the cash price at the delivery point and the delivery month futures price, the difference is small.[5] Therefore, Gulf cash prices should be close approximations to actual delivery month futures prices for a Gulf soybean futures contract.

The cash price data used to compare the relative hedging risk of Chicago and Gulf soybean futures contracts came from two sources—"Southern Areas Weekly Grain Review" and *Grain and Feed Market News*.[6] Cash prices were collected for Chicago and the Louisiana Gulf and, in addition, for Memphis and six locations in Arkansas—Northeast, Eastcentral, Southeast, Southwest, Arkansas-White Rivers and Mississippi River. The price data were collected for the ten year period, August 1975 through July 1985. All prices were for the second Thursday of January, March, May, July, August, September and November. These are the delivery months for the Chicago soybean futures contract. All prices were for No. 1 yellow soybeans except the Gulf quote which changed to No. 2 yellow in July 1981. To make the Gulf price series consistent with the other series, Gulf prices for July 1981 forward were increased by 3¢ per bushel, the price differential between No. 1 and No. 2 soybeans in the Chicago futures contract.

HEDGING RISK FOR CHICAGO AND GULF SOYBEAN FUTURES CONTRACTS

Hedging risk was calculated as the standard deviation of the delivery month basis.[7] Hedging risk for Memphis and six locations in Arkansas is shown in Table 2. The least hedging risk was at Memphis for both the Gulf (10.0¢ per bushel) and Chicago (11.6¢) contracts. The greatest hedging risk for Chicago hedges was in Northeast Arkansas (14.1¢). Hedging risk was greatest for Gulf hedges in Southwest Arkansas (13.8¢).

If the difference between the net and target prices is normally distributed, roughly two thirds of the time the net price received from a hedge should fall within one standard deviation of the target price. The standard deviations in Table 2 can be used to determine the range within which the net price might be expected to fall with a two-thirds (or any given) probability. From the example in the first section, the target price was $5.50 per bushel. If we assume the hedging location was Memphis, the net price should be expected to fall within 10 cents per bushel of the target price—i.e., in the range $5.40 to $5.60 per bushel—two thirds of the time.

The change in hedging risk from using

TABLE 2
HEDGING RISK ASSOCIATED WITH ARKANSAS AND MEMPHIS HEDGES PLACED IN CHICAGO AND GULF SOYBEAN FUTURES CONTRACT

Hedging Location	Hedging Risk[a] Chicago	Gulf	Change in Hedging Risk
	(¢ per bu.)		percent
Arkansas:			
Northeast	14.1	11.4	−19.1
Eastcentral	12.0	12.4	3.3
Southeast	12.3	12.7	3.3
Southwest	13.0	13.8	6.2
Arkansas and White Rivers	13.3	12.0	−9.8
Mississippi River	13.0	11.2	−13.8
Memphis	11.6	10.0	−13.8

[a] Hedging risk is defined as the standard deviation of the delivery month basis. Seventy observations were used to calculate the standard deviations for all locations except for Southwest and Northeast Arkansas where only 66 and 51 observations, respectively, were used because prices were not always reported.

a Gulf compared to a Chicago soybean futures contract varied considerably by location. Hedging risk was reduced 9.8 percent for Arkansas-White Rivers hedges, 13.8 percent for Mississippi River and Memphis hedges and 19.1 percent for Northeast Arkansas hedges. However, for Eastcentral, Southeast and Southwest Arkansas hedges, a Gulf contract actually increased hedging risk from 3.3 to 6.2 percent compared to a Chicago contract.

With the exception of Northeast Arkansas, it is estimated that river elevators would experience the greatest reduction in hedging risk. Soybeans that leave the river elevators are generally going to the Gulf for export, and therefore the price at the river elevators is based on the price being paid for soybeans at the Gulf. The tie between river and Gulf prices results in less basis variation, which means less hedging risk with a Gulf compared to the Chicago contract.

There are a number of factors that affect the river-Gulf basis and hedging risk for river elevators. A major factor is the cost of shipping soybeans in barges. Variation in barge rates explains 24-40 percent of the variation in the difference between Gulf and river elevator prices.[8] Other factors account for the remaining variation. There are handling costs associated with loading and unloading the barges used to transport the soybeans. Labor and overhead expenses are associated with negotiating the sale and arranging for transfer of ownership of the soybeans. Also, the difference between Gulf and river elevator prices depends on demand factors which are not related to the costs mentioned above.

The lower risk for river elevator hedges with a Gulf contract implies that variation in the factors discussed in the previous paragraph is less than variation in the demand-supply factors that affect the relationship between Arkansas and Chicago prices. Because Arkansas soybeans do not move to Chicago, the factors that affect the relationship between Arkansas and Chicago prices is not well defined. Indeed, virtually any factor that relates to soybean pricing—e.g., world monetary and fiscal policy which affects exchange rates and export demand for U.S. soybeans, political embargoes, rainfall in Brazil—can affect the relationship between Arkansas and Chicago soybean prices. The fact that so many factors affect the Arkansas-Chicago price relationship explains why the Arkansas-Chicago basis varies more than the Arkansas-Gulf basis. More basis variation is responsible for the greater hedging risk for river elevators with a Chicago rather than a Gulf soybean futures contract.

The locations that are estimated to experience an increase in hedging risk are all offriver country elevators. Country elevators have a low turnover rate and soybeans purchased by country elevators are likely to be stored. Storage soybeans are generally hedged in the existing Chicago soybean futures contract and, therefore, the buying price at country elevators is closely tied to the Chicago futures price. The close tie between country elevator prices and Chicago prices, brought about by the need to hedge storage soybeans, explains why hedging risk at country locations was less for a Chicago than a Gulf contract. If a Gulf soybean futures contract were available, Arkansas country elevator hedges would likely be placed in the Gulf contract rather than the Chicago contract. And, based on the results for river locations, it is expected that hedging risk would be reduced for country elevators also.

GULF VS. CHICAGO SOYBEAN FUTURES CONTRACTS

Even though it is estimated that hedging risk could be reduced at some locations in Arkansas and likely would be reduced at all locations if a Gulf soybean futures contract were available, a successful Gulf contract has never been developed.[9] There are several reasons that can explain this. (1) Tradition often determines which contracts are traded. A Chicago soybean futures contract has always been traded and will continue to be traded unless there is considerable evidence suggesting the need for a change. (2) Roughly nine out of ten new contracts introduced by small exchanges, like the New Orleans Commodity Exchange, fail. If a large exchange with ample resources for research and contract development offered a Gulf soybean futures contract, the chance of success would be much greater.[10] (3) A primary factor that led to the failure of the New Orleans Commodity Exchange soybean contract was lack of speculative interest in the market. If hedges cannot be placed without causing unreasonable price movement against the cash position, hedgers will not use the contract. Without hedging interest in the market, there is little chance for a successful contract.[11] The problem is that hedging interest cannot be attracted without local speculators to offset the hedges but local speculators have no interest in the market unless there is sufficient hedging activity from which to earn a living from trading. A larger exchange, like the Chicago Board of Trade, would have a better chance of attracting local speculators to trade a Gulf soybean futures contract. (4) Some grain trading companies do not prefer a better hedging contract because money is made from uncertainty in price relationships. Grain companies possess information on the usage and movement of grain that can be used to predict the basis. For the river locations where the large grain elevators are located, basis risk is greatest with the existing Chicago contract. More variation in the basis means that more money can be made from the information possessed by the grain companies. Thus, some grain traders would prefer the existing Chicago contract rather than a Gulf contract which should make the basis more predictable.[12]

CONCLUSIONS

While establishment of Gulf soybean futures contracts may be difficult, it is estimated that hedging risk for elevators and processors located in Northeast Arkansas and along the Arkansas-White and Mississippi Rivers would be reduced from 10 to 19 percent for hedges placed in a Gulf rather than a Chicago soybean futures contract. However, for Eastcentral, Southeast and Southwest Arkansas, hedging risk with a Gulf contract is estimated to increase 3 to 6 percent.

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[1] The New Orleans Commodity Exchange is now called the Chicago Rice and Cotton Exchange.

[2] U.S. Department of Agriculture, Economic Research Service, *Oil Crops: Outlook and Situation Report* (OCS-7), May 1985.

[3] U.S. Department of Agriculture, Agricultural Marketing Service, *Grain and Feed Market News*, various issues, 1975-85.

[4] More than one third of U.S. soybean exports was shipped from the states of Arkansas, Louisiana, Mississippi, and Tennessee through the Gulf ports. See Mack N. Leath, Lowell D. Hill, and Stephen W. Fuller, *Soybean Movements in the United States: Interregional Flow Patterns and Transportation Requirements in 1977*, Agricultural Exp. Station Bulletin No. 766, University of Illinois, Urbana-Champaign, Illinois, 1981.

[5] Thomas A. Hieronymus, *Economics of Futures Trading*, Commodity Research Bureau, Inc., 1977, pp. 152-54.

[6] "Southern Areas Weekly Grain Review" is published by the University of Arkansas, Cooperative Extension Service and U.S. Department of Agriculture, Agricultural Marketing Service. *Grain and Feed Market News* is published by the U.S. Department of Agriculture, Agricultural Marketing Service.

[7] The standard deviation is a measure of variation. It is defined as the square root of the average deviation of the actual basis from the average basis. See William Mendenhall, *Introduction to Probability and Statistics*, Duxbury Press, North Scituate, Massachusetts, 1979, p. 46.

[8] Developed from the following regressions—
Arkansas and White Rivers:
$PD = 0.33 + 0.68T$ with $R^2 = 0.23$
Mississippi River:
$PD = 0.34 + 0.29T$ with $R^2 = 0.26$
Memphis:
$PD = 0.13 + 0.62T$ with $R^2 = 0.40$
where PD is the difference between soybean prices at the Gulf and at the river points and T is the per bushel barge cost for shipping soybeans from the river points to the Gulf. The barge rates were taken from J. Michael Harris, "Spot Barge Rates for Grains and Oilseeds Transported on the Mississippi River System," forthcoming staff report, U.S. Department of Agriculture, ERS, National Economics Division. R^2 measures the proportion of the variation in the Gulf-river price differences accounted for by variation in barge rates.

[9] Attempts have been made to establish Gulf futures contracts for grains also. In the early 1970's, the Chicago Board of Trade developed a Gulf contract for hard winter wheat. More recently, the Chicago Rice and Cotton Exchange traded a Gulf contract in corn. Even though some trading occurred in both contracts, neither was successful.

[10] William L. Silber, "Innovation, Competition and New Contract Design in Futures Markets," *Journal of Futures Markets*, 1, 1981, pp. 123-55.

[11] Holbrook Working, "Futures Trading and Hedging," *American Economic Review*, 43, 1953, pp. 314-43.

[12] Cottonseed oil traders boycotted cottonseed oil futures because they could make more money by working the relationship between soybean oil futures and cottonseed oil cash prices than trading price relationships between cottonseed oil cash and futures prices. See Thomas A. Hieronymus, *Economics of Futures Trading*, Commodity Research Bureau, Inc., New York, 1977, p. 350.

ADMINISTRATIVE BURDENS OF ARKANSAS COUNTY GROWTH AND OF STAGNATION: SOME STATISTICAL INDICATORS

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Differences in the burdens of administering local government during jurisdictional growth and decline have been noted particularly in reference to the experience of large cities. Muller finds, for example, that growing urban areas require an expanded infrastructure such as roads, utilities and schools. Conversely, stagnant cities appear to be under pressure to provide greater social and health services.[1]

Recently, concurrent with economic bad times, there has been an increased interest in identifying the impacts of stagnation on public services. Thus, for instance, Danziger and Ring find that jurisdictions with declining economies tend to reduce educational, health, welfare, public safety and criminal justice services.[2] McGowan and Stevens, in assessing the problems of local government managers during times of fiscal stress, find that their paramount concerns include economic revitalization, funding sources, productivity and reduction of services.[3]

On a more theoretical plane, Levine suggests that conditions of abundance allow for more informal and expansive managerial styles because the costs of mistakes can be more easily absorbed. In times of austerity, however, managerial control and careful analysis is much more important although, paradoxically, funds for such administrative enhancement are not as readily available.[4] Relatedly, Biller observes that managers in retrenchment situations are less inclined to innovation and have less flexibility to face organizational emergencies.[5]

The ensuing study seeks to contribute to the identification of special demands made on local government management under conditions of jurisdictional expansion and contraction. Specifically, this research reports on the differential assessment of managerial task needs by both growing and stagnating counties in Arkansas.

THE METHOD OF THE STUDY

The present analysis is a by-product of a larger study conducted by the Arkansas State University program in public administration during the summer of 1983. At that time the university sought to obtain concrete information about the administrative needs of Arkansas local government so as to better define for itself an educational and technical assistance mission in public administration. Part of the study consisted of administering a survey instrument to a sample of Arkansas municipal and county executives in all 75 counties of Arkansas whereby such officials were asked to assign an importance weight to various staff administrative training needs. Forty-five percent (39) of the seventy-five Arkansas counties responded. Their expressed priorities for various kinds of staff training are summarized in the table below. (See Column 2). Highest training priorities were assigned to grant-in-aid procurement, financial administration and police administration respectively.

Of particular interest here is to determine if there exist any significant differences in the administrative training needs expressed by county officials of expanding and of stagnating jurisdictions. County growth is considered to be reflected in a) expanding resident population, and b) growth in personal income. Average annual change during the 1970s decade in each of the preceding indicators was obtained for each responding county.[6] Subsequently, such data were correlated with importance weights assigned by county officials of each responding county to the enumerated administrative training categories.

The average annual growth in total resident population of Arkansas during the 1970s decade was 1.7%, and that of total personal income, 12.1%. Among the counties responding to the survey, the highest annual growth rates for any given county were as follows: population 6.0% and personal income 16.6%. The lowest annual growth rates for any responding county were: population 1.9% and personal income 8.5%

The accompanying table lists Pearson correlation coefficients relating the two indicators of county growth and the importance values assigned by the responding county officials to various categories of administrative training. Such training needs are considered to be broadly indicative of administrative burdens associated with county expansion or stagnation. Definitions of each column contained in the table are as follows:

Column 1. "Administrative Training Category": The survey instrument to which county executives were asked to respond enumerated thirty categories of administrative training. These categories were preidentified as being types of staff training potentially useful to local government management. Such preidentification was made on the basis of consultation with local government officials, from review of related literature and, in particular, on the basis of program agendas of local government officials' regional and national conferences.

Column 2. "Overall Priority Rank": The county executives were requested to assign an importance weight to each category of administrative training on a scale of 5 (most needed) to 1 (least needed). The priority ranking is thus based on the combined response of the thirty-nine counties. It should be noted that some categories are given equal rank. This is mostly due to rounding of the averaged weight graduations considered too small to be of any significance.

Column 3. "Population Growth (r)": This column lists the coefficient of correlation between the average annual growth in total county resident population (1970-1980) and the importance weight assigned by each of the thirty-nine responding county officials to a given category of administrative training.

Column 4. "Personal Income Growth (r)": This column lists the coefficients of correlation between the average annual growth in total personal income for a given county during the 1969-1979 decade and the importance weight assigned by each of the thirty-nine responding county officials to the enumerated categories of administrative training. It should be noted that these county annual personal income growth data have not been adjusted for inflation. This may somewhat distort the analysis as there may have been a differential impact of inflation upon individual counties during the subject decade.

CORRELATES OF COUNTY GROWTH AND OF ADMINISTRATIVE TRAINING PRIORITIES*

(1) Administrative Training Category	(2) Overall Priority Rank	(3) Population Growth (r)	(4) Personal Income Growth (r)
Financial administration	1	0.64	0.69
Graint-in-aid procurement	2	-0.10	-0.21
Computer information systems	3	0.03	-0.13
Jail administration	4	-0.39	-0.30
Local tax & revenue administration	4	-0.03	-0.02
Purchasing and contracts administration	4	-0.04	0.01
Economic development	5	0.12	-0.09
Police administration	5	-0.22	-0.10
Personnel administration	5	-0.10	-0.21
Fire protection administration	5	-0.12	-0.09
Occupational health and safety	6	-0.07	-0.16
Administrative law	6	-0.35	-0.26
Risk and insurance management	7	-0.19	-0.25
Broadcast/print media relations	7	0.64	0.00
Disaster preparedness and management	8	0.65	-0.04
Records management	9	-0.11	-0.12
Productivity improvement	9	0.14	-0.02
Traffic engineering	9	-0.02	0.07
Administration of social services	9	-0.30	-0.44
Energy issues	9	-0.15	-0.24
Historic site rehabilitation	10	0.01	-0.14
Community rehabilitation	11	0.01	-0.07
Planning and land use	11	-0.01	-0.23
Public health and safety	12	-0.04	-0.12
Public works and management	12	0.00	0.00
Intergovernmental relations	12	-0.10	-0.09
Environmental protection	12	-0.05	-0.25
Parks and recreation administration	13	0.03	0.12
Telecommunications & local government	13	-0.05	-0.13
Facilities design	14	-0.20	-0.16

*Coefficients significant at the .05 level are underlined.

ANALYSIS

The number of observations (N = 39) require a correlation coefficient of at least 0.3 before any inferential significance (at the .05 level) can be attached to a given association. Consequently, the ensuing comments are limited to relationships of such, or greater strength.

Before remarking on particular associations between administrative training needs and county growth that are statistically meaningful, several general observations about these correlation data are warranted. Inspection of the accompanying table reveals but six cases of statistically significant association between county growth and administrative need. Such results imply that Arkansas officials both of growing and of stagnating counties generally tend to perceive many of their administrative burdens in a similar fashion. Such a result is somewhat in contrast to the studies cited earlier which suggest a more acute differentiation in administrative styles associated with "growth management" and with "cutback management."

The tendency of expanding and contracting county executives to perceive many of their administrative burdens in a like fashion may be appreciated with the realization that both growth and stagnation place many common pressures on county management but from somewhat different directions. Expanding jurisdictions are characterized by pressure from the "demand" side as an increasing number of citizens expect services. Stagnating counties are characterized by pressures from the "supply" side as county management scrambles to maintain services with decreasing resources. Thus, for example, an executive of a rapidly growing county may perceive a strong need for police training because new officers are continuously being added to the force. On the other hand, an executive of a stagnating county may equally perceive a strong need for police training because lack of adequate revenue compels the employment of inferior police manpower.

ADMINISTRATIVE BURDENS OF GROWTH

Positive correlation coefficients are indicative of a direct relationship between county expansion and an increasing need for a particular category of administrative training. Three such categories show a positive and significant association with growth.

Expanding counties reflect a greater need for training in **financial administration**. The coefficients are positive and significant for both growth indicators, population ($r = 0.64$) and personal income ($r = 0.69$). The relationship between county growth and the need for financial administration training are, when taken as a whole, the strongest found in the table. It may be that this association reflects the need for expanding jurisdictions to obtain fiscal skills beyond mere record keeping as they enter the more complex administrative task where financial information is used for the purposes of managerial control of operations and for planning.

Growing jurisdictions also show a pronounced need to obtain training in **disaster preparedness and management**. The coefficient of correlation between need for such training and the average annual growth in resident population is 0.65, a strong measure of association. Such need may reflect the natural inclination by county administrators to safeguard an increasingly more dense population. On the other hand, population growth may also trigger state and federal mandates requiring emergency preparedness.

Counties with expanding populations also show a significantly greater need for administrative training in **broadcast/print media relations**. The correlation coefficient between the average annual growth in county resident population and the importance weight assigned by county officials to this training category is a strong 0.64. The explanation for this association is likely to be found in the natural tendency of media to locate in expanding population centers. It can be expected that executives of such counties will develop a greater awareness of the importance of the media in the conduct of public business.

ADMINISTRATIVE BURDENS OF STAGNATION

Negative correlation coefficients indicate that a particular training need is inversely related to county expansion. Thus they can be considered as reflective of an association between jurisdictional stagnation and particular administrative burdens of such stagnation. Three categories of administrative training needs show an inverse and significant relationship with county growth.

Slow growing counties show a greater

need for training in **administrative law**. The correlation coefficient between the average annual growth in county resident population and the importance weights assigned to training in administrative law is −0.35. This relationship is difficult to explain solely in the context of growth/stagnation causality. However, since the slow growing counties also tend to be the smaller rural jurisdictions, their greater preoccupation with administrative law may simply reflect their inability to pay for adequate legal counsel for purposes such as the interpretation of state statutes or various federal assistance guidelines.

Officials of the relatively stagnant jurisdictions express a greater need for training in **jail administration**. The correlation coefficient between the latter administrative training category and average annual growth in county population is −0.39. Several explanations may account for this association. During recent years there has been a movement within the national corrections community to upgrade local jail facilities and services. Thus, county officials may be sensitive to such pressure. Moreover, it can also be speculated that economically stagnant jurisdictions may experience a greater volume of social stress resulting, for example, in more violence and alcohol/drug abuse. Such developments can be reasonably expected to increase jail populations. (It should be noted that such trends may not necessarily put equal pressure on county policing as much of the latter is the prerogative of incorporated areas whereas the jail is a county government responsibility.)

The last significant association is that for the **administration of social services**. The coefficient of correlation between growth in personal income and the need for improved administration of social services is −0.44. This relationship corresponds to that found in the research previously cited. Slow growing and declining jurisdictions are under conspicuous pressure to provide a greater amount of various social services due to such reasons as, for example, an increase in welfare assistance caseloads and a rise in the incidence of mental and physical illness.

CONCLUDING SUMMARY

In the context of this analysis it can be stated that to the extent that county expansion bears distinct burdens on county administration, such burdens primarily translate to the need to enhance managerial and staff capabilities in a) financial administration, b) disaster preparedness and management and c) broadcast/print media relations. To the extent that jurisdictional stagnation bears distinct burdens on county administration, such primarily translate to the need for enhanced managerial and staff capabilities in a) administrative law, b) jail administration and c) administration of social services.

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[1] Thomas Muller, *Growing and Declining Urban Areas: A Fiscal Comparison* (Washington, D.C.: The Urban Institute, 1976).

[2] James N. Danziger and Peter Smith Ring, "Fiscal Limitations: A Selective Review of Recent Research," *Public Administration Review*, XLII (January/February 1982), 47-55.

[3] Robert P. McGowan and John M. Stevens, "Local Government Management: Reactive or Adaptive," *Public Administration Review*, XLIII (May/June 1983), 260-267.

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[5] Robert P. Biller, "Leadership Tactics for Retrenchment," *Public Administration Review*, XL (November/December 1980), 604-609.

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THE EFFECTS OF CHANGING AGRICULTURE CONDITIONS ON COMMERCIAL BANKS IN ARKANSAS

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> "... we were operating in a crisis atmosphere. Farmers are going bankrupt, rural banks - and the Farm Credit System - all find themselves struggling for survival.... It has been an emotional experience for me to travel through Arkansas meeting with thousands of farmers, many of whom are losing their farms."
>
> Senator David Pryor[1]

INTRODUCTION

It appears obvious to all that U.S. agriculture continues in a state of depression. In fact, the failure rate for farm business is at its highest since the 1930's. Real farm income for the U.S. has declined since 1979 and estimates for 1986 foresee no reversal in the trend. The U.S. Department of Agriculture expects the drop in farm land values to continue.[2]

"The focal point of U.S. agriculture in 1985 was its deteriorating credit conditions. Farmers and ranchers throughout the country underwent far more financial stress than normal, and more than in 1984. Farm loan problems intensified for farm lenders—a fact highlighted by deepening financial pressures for the Farm Credit system and commercial banks that lend to agriculture."[3]

In this paper the authors will examine the extent of the financial crisis in the agricultural sector facing the commercial banks of Arkansas. An analysis of different financial variables of Arkansas commercial banks will help to identify the extent of the crisis being reported in the literature. The objectives of this paper will be:

1) to document trends in agricultural lending activity by Arkansas commercial banks.
2) to compare the reported financial performance of agricultural banks in Arkansas to non-agricultural banks using call report data from the "farm crisis" years.
3) to specifically analyze the extent to which the recent financial characteristics of Arkansas commercial farm banks are typical of a mismanagement or "problem" bank situation.

CHANGING CONDITIONS OF MAJOR AGRICULTURAL LENDERS

"Banks account for 23 percent of outstanding farm debt at the end of 1984. Banks provide both real estate and non-real estate loans to farmers, but their most significant role is in non-real estate lending to farmers where they account for 39 percent of the $100 billion in such outstandings."[4]

The deterioration of loan portfolios of rural banks has even led to additional reporting requirements. "Nationally, failures of agriculture banks have risen from 13 percent of all failures in 1983 to 32 percent in 1984—and this proportion continues to rise."[5] Obviously agricultural commercial banks are experiencing some problems but these are subject to certain qualifications which this study will attempt to address. First, as can be seen in Table 1, commercial banks are not suffering the same degree of stress as are the Federal agencies which help finance agriculture.

Table 1 shows data which are useful for appraising the overall impact of the "farm crisis" on the performance of agricultural lenders. Of the major agricultural lenders: 1) federal land banks, 2) production credit associations, and 3) commercial banks, the potential for insolvency as evidenced by significant decreases in profitability is far greater within the federal farm credit system than with commercial banks. Of major importance in this study is the fact that the profitability of Arkansas agricultural commercial banks remains above that of the other commercial banks in the district. The initial implication is that Arkansas banks have coped with the financial stress better than have their national counterparts.

The Federal farm credit system is clearly in difficulty. Agricultural commercial banks may face similar problems. Recent regulatory reports show a decline in average profitability and increase in loan losses for agricultural banks in several key agricultural states.[6] No detailed studies have been released thus far, however, to confirm whether this is indicative of a potential "problem bank" situation. In fact, some do not view it as a major problem as indicated by the statement that "although stresses will continue, the overall soundness of the agricultural banking system remains secure, resting on the twin pillars of strong capital and stable deposits."[7]

TABLE 1
SELECTED FINANCIAL DATA FOR AGRICULTURAL LENDERS
MEAN RETURN ON EQUITY (%): 1978-1984

	Federal Land Banks		Production Credit Associations		Commercial Banks					
						District		Arkansas		
	U.S.	District	U.S.	District	U.S.	Agri	Non-Agri	Agri	Non-Agri	All
1978	7.0	8.2	5.0	5.9	13.2	12.9	12.1	11.5	12.5	12.2
1979	7.6	9.2	5.7	5.7	14.6	13.7	12.3	12.1	12.0	12.1
1980	10.2	6.3	8.3	6.2	15.4	13.1	11.5	12.1	11.5	11.7
1981	9.9	6.5	8.2	6.3	14.9	12.0	9.9	11.1	10.7	10.9
1982	11.0	10.3	6.9	5.1	13.6	11.4	10.0	9.3	11.0	10.4
1983	5.0	3.1	2.0	.3	11.1	10.4	9.2	10.1	8.7	9.2
1984		−0.3	−0.3	.1	7.9	3.0	10.4	6.2	5.7	5.9

Source: Data provided by Michael T. Belongia and Kenneth C. Carraro, Federal Reserve Bank of St. Louis, St. Louis, Missouri.

TRENDS IN AGRICULTURAL LENDING ACTIVITIES BY ARKANSAS COMMERCIAL BANKS

The available data indicate that during the seven year period of 1978 through 1984, Arkansas' commercial banks showed a definite overall trend of adjusting their lending portfolio away from agricultural activities. This can be seen in Table 2 where the percent of farm loans for all reporting Arkansas banks is described for each year under study. A drop of about 21½ percent or 4.1 percentage points can be seen, which appears to be an observable trend in the data. For the purpose of this study, farm loans are defined as the sum of (1) loans to finance agricultural production and other loans to farmers, and (2) loans secured by farmland. The percentages are relative to the total loans made by the respective banks for each year. From Table 2 it should also be noted that the ratio of farm loans to total loans bottomed out in 1984.

For purposes of comparison with Federal Reserve studies, the authors divided Arkansas commercial banks into three categories of equal number (86) according to their total asset size in 1984. Large banks were defined as having total assets in 1984 of over $53,800,000, medium banks having total assets of $22,800,000 up to $53,800,000, and small banks with total assets of less than $22,800,000.

The data from Table 3, which presents the amount of farm loans in nominal dollars, must be analyzed before many conclusions are reached. Notice, the first section of this table presents the mean farm loans by year for the reporting Arkansas banks. What is noteworthy here is that the amount of farm loans has been increasing, at least in nominal amounts since 1981. At the same time the portfolio percentage of farm loans to total loans was unchanged. This observation deserves further investigation.

The categorization of banks relative to their size allows an investigation of the question of farm loans relative to bank size. In particular, the question can be asked whether the size of a bank would influence bank behavior relative to its propensity to make agricultural loans during the seven years under study. As can be seen in the last three sections of Table 2, bank size does appear to relate to a bank's level of farm loans relative to total loans. Irrespective of the year, large banks had less of their total loan portfolio invested in farm loans than did the smaller banks. Furthermore, it can be seen that both large and small banks were reducing their percentage of farm loans during the period of this study. But, once again, there appears to be a size relationship in that large banks were reducing their portion of farm loans more drastically than were the small banks during the seven year period. Note that large banks reported a 30 percent reduction in the ratio of farm loans to total loans between 1978 and 1984 while small banks reported only a 13 percent reduction. In other words, smaller banks had a higher portion of farm loans to total loans than did large banks and were not reducing their dependency on farm loans as dramatically as were the large banks.

Similar results can be seen in the last three sections of Table 3 where the amount of farm loans in nominal dollars is displayed for the three bank sizes for each of the seven years. Notice that, even though the total amount of farm loans is increasing for the state of Arkansas during the period, the portion supplied by the various bank size groups is not constant. The portion of the state's total agricultural dollar loans from small commercial banks is increasing during the period. In 1984, large commercial banks in Arkansas had increased their nominal dollar farm loan by 12.8 percent in terms of average size of farm loan and total farm loans since 1978. Small banks, meanwhile, reported a 8.4

TABLE 2
ARKANSAS COMMERCIAL BANKS
FARM LOANS AS A PERCENT OF TOTAL LOANS
1978-1984

All Reporting Banks

	Number of Banks	Farm Loans/Total Loans
1978	249	19.0
1979	249	17.9
1980	251	17.9
1981	253	14.9
1982	254	14.2
1983	256	15.0
1984	258	14.9

Large Banks[1]

	Number of Banks	Farm Loans/Total Loans
1978	86	14.1
1979	86	12.8
1980	86	11.6
1981	86	10.3
1982	86	9.7
1983	86	10.1
1984	86	9.8

Medium Banks[2]

	Number of Banks	Farm Loans/Total Loans
1978	82	21.4
1979	82	20.5
1980	82	19.4
1981	83	16.9
1982	83	16.5
1983	84	16.8
1984	86	15.9

Small Banks[3]

	Number of Banks	Farm Loans/Total Loans
1978	80	21.8
1979	80	19.9
1980	82	19.9
1981	83	17.5
1982	84	16.6
1983	85	18.2
1984	86	18.9

[1] Large banks were defined as having total assets of over $53,800,000 in 1984.

[2] Medium banks were defined as having total assets of between $22,800,000 and $53,800,000 in 1984.

[3] Small banks were defined as having total assets of less than $22,800,000 in 1984.

Source: Board of Governors of the Federal Reserve System, Report of Condition and Income, Washington, D.C.

TABLE 3
FARM LOANS OF ARKANSAS COMMERCIAL BANKS
(in 000's)
1978-1984

All Reporting Banks

	Average	Total	% of Total	Annual % Change in Total
1978	2,687	669,197	100%	
1979	2,540	632,538	100%	−5.5
1980	2,552	641,012	100%	1.3
1981	2,366	598,633	100%	−6.6
1982	2,356	599,461	100%	0.0
1983	2,618	610,232	100%	12.0
1984	2,906	749,814	100%	11.8

Large Banks

	Average	Total	% of Total	Annual % Change in Total
1978	4,313	375,253	56.1	
1979	3,971	345,505	54.5	−7.9
1980	3,978	346,121	53.9	.2
1981	3,756	326,812	54.5	−5.6
1982	3,728	324,354	54.1	−.8
1983	4,278	372,215	55.5	14.8
1984	4,867	423,455	56.5	13.8

Medium Banks

	Average	Total	% of Total	Annual % Change in Total
1978	2,467	202,331	30.2	
1979	2,500	205,024	32.4	1.3
1980	2,509	205,800	32.1	.4
1981	2,284	189,579	31.6	−7.9
1982	2,345	194,694	32.5	2.7
1983	2,465	207,052	30.8	6.3
1984	2,568	220,834	29.5	6.7

Small Banks

	Average	Total	% of Total	Annual % Change in Total
1978	1,145	91,603	13.7	
1979	1,025	82,009	12.9	−10.5
1980	1,086	89,091	13.8	8.6
1981	991	82,242	13.7	−7.7
1982	945	79,413	13.2	−3.4
1983	1,070	90,965	13.5	14.5
1984	1,241	105,525	14.1	16.0

Source: Board of Governors of the Federal Reserve System, Report of Condition and Income, Washington, D.C.

percent increase in average size of farm loan and 15.2 percent increase in total farm loans. These dollar amount observations concerning farm loan volume according to bank size correspond to the data in Table 2 when farm loans as a percent of total loans were analyzed.

RETURN ON EQUITY ANALYSIS OF ARKANSAS COMMERCIAL BANKS

The accounting information filed by commercial banks on what are commonly known as "call reports" has been shown to be of value in identifying problem institutions.[8] A common technique of financial statement analysis which is effective with bank call report data is the return on equity model. Return on equity analysis is even being used as a review for potential bank failure.[9]

The return on equity (ROE) model is:

Return on Equity = Return on Assets (ROA) × Equity Multiplier (EM)
Net Income/Equity = Net Income/Total Assets × Total Assets/Equity = ROA × EM

The components on Return on Assets (ROA) are:

Return on Assets = Profit Margin (PM) × Asset Utilization (AU)
= Net income/operating income × Operating income/total assets = PM × AU

The five accounting ratios in the ROE model were used in the first stage analysis of Arkansas agricultural banks. The procedure is as follows:

1) Return on equity for all reporting Arkansas banks for the years 1978-1984 was calculated using year-end call report data.

2) In order to be consistent with national data, a sample of agricultural banks was created by defining an agricultural bank as one having a ratio of farm loans to total loans greater than .1752001 as of year-end 1984.

3) The total number of Arkansas banks analyzed was reduced by eliminating banks which in 1984 reported a ROE outside of 4 standard deviations of the mean for the state. This was done to eliminate the outlier bias in the results. Note, however, that of the 25 banks eliminated, only 7 were defined as agricultural banks, moreover, no high performance banks were eliminated. A comparison of ROE for all Arkansas commercial banks and the final reduced sample used for analysis is shown in Table 4.

As can be seen in Table 4, when the extreme outliers are eliminated, the average return on equity for the agricultural banks does fall below that of the non-agricultural banks in 1982 (10.5% compared to 11.2%) and drops markedly in 1984 to 6.4 percent. The remainder of the analysis concentrates on an explanation of this difference in performance.

RETURN ON EQUITY DECOMPOSITION

Table 5 shows the results of the return on equity (ROE) analysis of the reduced sample of Arkansas commercial banks and for three sub-samples based on asset size.

1) The drop in reported ROE for the agricultural banks (compared to non-agricultural banks) is explained in part by a higher equity multiplier (EM) (lower capital to asset ratios) for the non-agricultural banks. In other words, agricultural banks have actually remained better capitalized than non-agricultural banks.

2) Asset utilization (AU) for all commercial banks has steadily improved and the Arkansas banks are no exception. In recent years, the agricultural banks have reported higher asset utilization than the non-agricultural banks.

3) The comparative drop in ROE in

TABLE 4
RETURN ON EQUITY
ARKANSAS COMMERCIAL BANKS

	All Reporting Banks			Reduced Sample		
	Total	Agri Banks	Non-Agri Banks	Total	Agri Banks	Non-Agri Banks
1978	12.1	11.5	12.5	12.8	12.1	13.1
1979	12.1	12.1	12.6	13.0	12.7	13.1
1980	11.7	12.1	11.5	12.4	13.4	12.3
1981	10.9	11.1	10.7	11.1	11.2	11.1
1982	10.4	9.3	11.0	11.0	10.5	11.2
1983	9.2	10.1	8.7	10.6	10.6	10.6
1984	5.9	6.2	5.7	8.1	6.4	9.1

1984 for the agricultural banks is explained mainly by a fall in return on assets associated with declining profit margins (PM).

4) The differences noted above are not uniform with respect to bank size. The performance of agricultural banks in the large bank sample appeared not to differ markedly from that reported by non-agricultural banks. The profitability of all small banks in Arkansas, both agricultural and non-agricultural, has dropped off in recent years but with no marked differences between the two categories; both categories of small banks do show some relative decrease in ROE. But, the major differences in performance were in the medium size banks. For medium size banks the ROE for agricultural banks declined 70 percent from a ROE of 12.6 percent in 1978 to 3.8 percent in 1984. The corresponding drop for non-agricultural medium size banks was 40 percent from 13.0 percent to 7.8 percent. The ROS for non-agricultural medium size commercial banks in 1984 was more than double that of their agricultural counterparts. This is significant.

SUPPLEMENTAL LOAN LOSS RATIO

Sharp increases in loan losses are characteristic of problem bank situations, but the actual reporting of loan losses is subject to considerable lag and data on agricultural loans are not available. It should be noted that beginning in 1984 commercial banks with total assets greater than $100 million are required to report past due loans by loan category. There were only 37 banks in Arkansas which had total assets greater than $100 million and only 1 of these was classified as an agricultural bank. Table 6 shows the provision for loan losses as a percent of total loans for agricultural vs. non-agricultural banks in Arkansas. In addition, past due, nonaccrual and renegotiated loans as a percent of total loans are shown for 1984 in Table 7. It should be noted:

1) In 1984, the average value of loan losses as a percent of total loans was markedly higher for agricultural banks than for non-agricultural banks while prior to 1984 there was little difference.

2) Past due, nonaccrual and renegotiated loans as a percent of total loans were also greater in 1984 for the agricultural banks.

3) Again, the major differences are with the small and medium size agricultural banks. The large bank sample shows no marked differences.

SUPPLEMENTAL LIQUIDITY RATIOS

At this stage of the analysis the data are consistent with performance patterns that have been observed in problem bank sit-

TABLE 5
ARKANSAS COMMERCIAL BANKS
RETURN ON EQUITY ANALYSIS: 1978-1984

	Agri Banks					Non-Agri Banks				
	Return on Equity	Return on Assets	Profit Margin	Asset Utili- zation	Equity Multi- plier	Return on Equity	Return on Assets	Profit Margin	Asset Utili- zation	Equity Multi- plier
Totals for Reduced Sample (Agri = 81, Non-Agri = 153)										
1978	12.1	1.11	15.3	7.3	11.4	13.1	1.12	15.4	7.4	12.4
1979	12.7	1.17	15.0	7.8	11.2	13.1	1.18	14.9	8.0	12.1
1980	12.4	1.18	12.9	9.2	10.8	12.3	1.13	12.7	9.1	11.8
1981	11.2	1.04	9.8	11.0	10.7	11.1	1.04	9.8	10.8	11.8
1982	10.5	1.02	8.9	11.4	10.6	11.2	1.02	9.3	11.1	11.9
1983	10.6	1.10	10.7	10.4	10.4	10.6	.98	9.8	10.1	11.9
1984	6.3	.79	7.4	10.8	11.2	9.1	.85	8.2	10.6	12.2
Large Bank Sample (Agri = 16, Non-Agri = 69)										
1978	13.1	1.10	14.7	7.5	12.0	14.2	1.11	15.0	7.5	13.3
1979	13.3	1.15	14.7	7.9	11.9	13.2	1.05	13.2	8.1	13.1
1980	14.4	1.10	11.9	9.4	11.7	12.9	1.05	11.6	9.2	12.7
1981	11.7	1.03	9.4	11.0	12.0	11.1	.90	8.2	10.9	12.9
1982	11.5	1.05	9.4	11.3	11.5	12.8	.98	8.8	11.1	13.1
1983	13.1	1.20	11.6	10.4	11.3	12.3	.97	9.6	10.1	13.1
1984	10.7	.99	9.3	10.8	11.8	11.2	.89	8.4	10.6	15.3
Medium Bank Sample (Agri = 29, Non-Agri = 48)										
1978	12.6	1.14	16.1	7.1	11.4	13.0	1.13	15.3	7.5	12.3
1979	14.1	1.31	16.7	7.8	10.1	13.0	1.17	14.8	8.0	11.8
1980	13.3	1.32	14.3	9.2	10.4	12.1	1.11	12.6	9.0	11.5
1981	12.0	1.21	11.2	10.8	10.3	11.3	1.06	10.1	10.7	11.4
1982	10.4	1.09	9.6	11.2	10.4	11.3	1.02	9.3	11.1	11.4
1983	11.8	1.23	11.9	10.3	10.2	9.8	.96	9.6	10.0	12.3
1984	3.8	.67	6.3	10.7	11.2	7.8	.74	7.1	10.5	11.9
Small Bank Sample (Agri = 86, Non-Agri = 36)										
1978	11.3	1.08	14.9	7.4	11.2	11.2	1.12	16.2	7.1	11.0
1979	11.4	1.06	13.8	7.8	11.1	13.0	1.42	18.2	7.9	10.7
1980	11.7	1.12	12.2	9.2	10.7	11.6	1.32	14.9	8.9	10.4
1981	10.3	1.01	9.0	11.2	10.5	10.6	1.30	12.5	10.7	10.2
1982	9.8	.96	8.2	11.7	10.4	9.0	1.10	10.2	11.2	10.2
1983	8.5	.96	9.3	10.4	10.2	8.3	1.09	10.6	10.3	10.3
1984	6.4	.79	7.4	10.9	10.9	6.6	.90	9.1	10.5	10.5

[1] This data item (RCON 1406) is considered confidential by the FDIC and is not included on subscription call report tapes.

Source: Board of Governors of the Federal Reserve System, Report of Condition and Income, Washington, D.C.

TABLE 6
ARKANSAS COMMERCIAL BANKS
LOAN LOSSES AS A PERCENT OF TOTAL LOANS
1978-1984

	Agri	Non-Agri		Agri	Non-Agri
Total for the Reduced Sample (Agri = 81, Non-Agri = 153)			**Large Bank Sample (Agri = 16, Non-Agri = 69)**		
1978	.33	.29	1978	.28	.24
1979	.42	.30	1979	.20	.31
1980	.31	.30	1980	.24	.29
1981	.34	.33	1981	.25	.32
1982	.45	.42	1982	.40	.39
1983	.61	.62	1983	.55	.53
1984	1.12	.81	1984	.69	.67
Medium Bank Sample (Agri = 29, Non-Agri = 48)			**Small Bank Sample (Agri = 36, Non-Agri = 36)**		
1978	.44	.34	1978	.26	.31
1979	.36	.34	1979	.56	.24
1980	.31	.30	1980	.34	.31
1981	.18	.31	1981	.50	.39
1982	.44	.37	1982	.49	.54
1983	.62	.65	1983	.62	.74
1984	1.25	.98	1984	1.20	.84

uations. In the typical problem bank situation, however, the deterioration in reported profitability and reported increase in loan losses is proceeded by a drop in liquidity as actual cash flows decline. Table 8 shows various liquidity measures for the total sample of Arkansas agricultural and non-agricultural commercial banks under analysis. The results indicate:

1) No reportable differences in liquidity between the two samples is apparent.

3) Arkansas banks have traditionally been net sellers of fed funds and furthermore there seems to be no reversal of this pattern among agricultural or non-agricultural banks.

3) Although not shown in Table 8, size effects were also examined. The authors observed no significant differences in liquidity in the three asset size classes.

SUPPLEMENTAL GROWTH RATIOS

While the capital and liquidity risk positions of Arkansas farm banks are not, at least as of year-end 1984, indicative of any widespread problem, an explanation is still needed for the current lackluster profitability of farm banks. Either the farm banks are not as well managed as the non-agricultural banks or they are more or less trapped in economic regions of the state where the base market is declining. To help examine the latter possibility, the authors compared annual growth rates in deposits and assets of the agricultural banks and the non-agricultural banks.

1) For the state as a whole since 1982, the non-farm banks have generally outperformed the farm banks in terms of growth in deposits and total assets. This suggests that the farm lenders may be losing market share to the more diversified non-farm banking sector.

2) These differences in growth are not uniform with respect to size. The medium size agricultural banks have the poorest growth record since 1982. The small agricultural banks have, somewhat surpris-

TABLE 7
PAST DUE, NONACCRUAL AND RENEGOTIATED LOANS AS A PERCENT OF TOTAL LOANS
YEAR-END 1984

	Past Due 30 to 80 Days and Still Accruing	Past Due 30 Days or More and Still Accruing	Non-accrual	Renegotiated "Trouble" Debt
Arkansas Agri Banks (n = 88)	3.0[1]	1.57	1.14	.12
Arkansas Non-Agri Banks (n = 170)		1.11	1.10	.09
Arkansas Large Agri Banks (n = 16)		1.03	.71	.04
Arkansas Large Non-Agri Banks (n = 71)		1.05	.09	.06
Arkansas Medium Agri Banks (n = 31)		1.78	1.36	.15
Arkansas Medium Non-Agri Banks (n = 55)		1.16	1.16	.08
Arkansas Small Agri Bank (n = 41)		1.61	1.13	.13
Arkansas Small Non-Agri Banks (n = 44)		1.15	1.04	.16
St. Louis Fed. Reserve Dist.[1]	2.7	1.6	1.5	.10
United States	2.6	1.4	2.0	.20

[1] This data item (RCON 1406) is considered confidential by the FDIC and is not included on supscription call report tapes.

Source: Board of Governors of the Federal Reserve System, Report of Condition and Income, Washington, D.C.

ingly, outperformed their non-agricultural counterparts in all years analyzed except 1980 and 1983.

SUMMARY OF FINDINGS

1) The agricultural segment of the market for commercial bank services and financial products, both directly through farm land and farm production financing and indirectly through agriculture related business, has been and remains important. However, in recent years commercial banks in Arkansas have on average diversified away from farming to other markets. This diversification has been more apparent among large banks than small ones.

2) The decomposition of return on equity for Arkansas agricultural commercial banks compared to non-agricultural banks and an examination of other key financial ratios indicates that the differences in profitability are mainly associated with declining profit margins and not with reportable differences in asset utilization or bank capital ratios.

3) Whereas loan loss ratios for agricultural banks in the state have increased, the average overall capital and liquidity position of these banks, as reported for year-end 1984, has not deteriorated. These increased loan losses may be temporary once major write-offs are taken.

4) The declining profit margins of the agricultural lenders may be due to a loss

TABLE 8
LIQUIDITY MEASURES FOR ARKANSAS COMMERCIAL BANKS
1978-1984

	Agri Banks					Non-Agri Banks				
	Total Loans/ Total Deposits	Total Loans/ Total Assets	L1*	L2**	L3***	Total Loans/ Total Deposits	Total Loans/ Total Assets	L1*	L2**	L3***
	Totals for Reduced Sample (Agri = 81, Non-Agri = 153)									
1978	60.2	53.8	26.4	2.6	29.1	60.2	53.6	25.8	2.0	27.8
1979	55.9	49.8	26.3	6.6	33.0	56.9	50.2	26.7	4.0	30.7
1980	56.5	50.2	27.3	4.9	32.3	56.8	50.0	27.9	3.0	31.0
1981	54.8	48.1	29.7	4.5	34.3	55.7	48.3	29.2	3.1	32.4
1982	51.9	45.6	29.6	8.2	37.8	55.1	47.9	29.1	4.1	33.3
1983	49.9	44.0	35.1	5.2	40.4	55.1	45.4	39.4	3.2	37.6
1984	51.4	45.7	33.3	6.9	40.3	54.6	48.2	32.6	3.4	36.5

*L1 Cash and due from depository institutions and U.S. Treasury securities and U.S. Government agency and corporate issues/total assets (%).

**L2 (Net federal funds sold and securities purchased under agreement to resell)/total assets (%).

***L3 (Cash and due from depository institutions and U.S. Treasury securities and U.S. Government agency and corporate issues and (net federal funds sold and securities purchased under agreement to resell)/total assets (%).

of market share. This analysis shows that Arkansas non-agricultural banks have outperformed the agricultural banks in terms of deposit and total asset growth since 1982. If the farm economy does not improve and the farm banks do not diversify, this loss of market share may not be temporary.

5) In summary, whereas the federal farm credit system appears to be in deep trouble, this analysis of a major farm lending state is not consistent with any widespread "problem" situation among agricultural commercial banks. This is not to say that selected banks and banking market areas in the state may not be in trouble. A major caveat that should be stated, given the inherent lags in bank accounting and reporting, is that these results stop at year-end 1984. An update of the analysis, after the 1985 call report data is released, should prove interesting.

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[1] U.S. Congress, Senate, Senator David Pryor speaking on the 1985 farm bill, 99th Cong., 1st sess., 18 December 1985, *Congressional Record*, Vol. 131, No. 176, S17893.

[2] Michael T. Belongia and Kenneth C. Carraro, "The Status of Farm Lenders: An Assessment of Eighth District and National Trends," *Review* (Federal Reserve Bank of St. Louis), October 1985, p. 19.

[3] Belongia and Carraro, "The Status of Farm Lenders," p. 17.

[4] Gary L. Benjamin, "The Financial Stress in Agriculture," *Economic Perspectives* (Federal Reserve Bank of Chicago), November/December 1985, p. 17.

[5] George M. Gregorash and James Morrison, "Loan Years in Agricultural Banking," *Economic Perspectives* (Federal Reserve Bank of Chicago), November/December 1985, p. 7.

[6] Albert R. Karr, "Farm Credit System May Get $3 Billion in Aid Under House Panel Leaders' Bill," *Wall Street Journal*, November 19, 1985, p. 3; George D.

Irwin, "The Farm Credit System Looking for the 'proper balance,' " *Economic Perspectives* (Federal Reserve Bank of Chicago), November/December 1985, p. 8; and Frederick Furlong and Randall Pozdena, "Farm Credit System," *Weekly Letter* (Federal Reserve Bank of San Francisco), December 20, 1985, p. 3.

[7] C. Robert Brenton, "An Ag Banker's Views," *Economic Perspectives* (Federal Reserve Bank of Chicago), November/December 1985, p. 28.

[8] Richard H. Pettway and Joseph K. Sinkey, Jr., "Establishing On-Site Bank Examination Priorities: An Early Warning System Using Accounting and Market Information," Journal of Finance (March 1980), pp. 137-150.

[9] Joseph F. Sinkey, Jr., *Problem and Failed Institutions in the Economical Banking Industry* (Greenwich, Connecticut: JAI Press, Inc., 1979).

SELECTED ARKANSAS AND U.S. ECONOMIC INDICATORS

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1986 AND THE OUTLOOK FOR 1987: A REAPPRAISAL

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It continues to be difficult to evaluate economic performance because the nominal and real rates of change are so similar in size in the absence of the extraordinarily high rates of inflation of previous years. Put more directly, further revisions in income data for 1985 and the first half of 1986, along with data reflecting inflation, indicate that the real rate of growth in the personal income of Arkansans was in the four to five percent range in 1986. While one could not call this a *robust* rate of growth, it is certainly better than an economy "adrift" as we had described it earlier.

The labor force continued to expand on almost a month-to-month basis throughout the year. By year-end, the civilian labor force was up 25,300 (+ 2.4%) and total employment was up 23,500 (+ 2.4%), so that the unemployment rate declined slightly from its December 1985 level. Manufacturing wage and salary employment contributed 4,500 jobs to this growth, while agricultural employment continued to shrink with a decline of approximately 900 workers over the twelve-month period.

Estimated value added by manufacture continued to expand from quarter-to-quarter throughout the year and the annual increase should be in excess of four percent. With some of the recently announced plans for expansion in the manufacturing sector, value added should improve somewhat in coming months unless a national economic downturn develops in late 1987 or early 1988.

Data available through the middle of 1986 on cash receipts from farm marketing in Arkansas indicate the year was even worse for agriculture than might have been expected earlier. This is particularly true since one sector — poultry — had an excellent year; thus, for the aggregate data to be as bad as now shown, crop-based sectors must have fared worse than anticipated.

The construction industry finished the year below the level that it began. However, with continuingly low interest rates, construction, particularly residential, activity should show improvement in the forthcoming months.

Some economists and national econometric models are beginning to predict rising rates of inflation, higher interest rates and the onset of a new recession in late 1987 or early 1988. With continued increases in the money supply and the rising federal deficits, recession seems highly likely. Possibly offsetting this, though, is the likelihood that the dollar will decline on world markets so that the balance of trade will improve. Timing, as usual, is critical in that a question remains as to how fast the trade position could indeed improve to forestall a downturn. Should a recession occur, it would almost certainly have to be late in the year. Even so, with the possibility that agricultural markets are headed toward improvement, Arkansas should make it through 1987 with a performance at least as good as that of 1986.

LABOR FORCE AND EMPLOYMENT
ARKANSAS

(Seasonally adjusted)

Year	Month	Civilian Labor Force (Units)	Total Employment (Units)	Agricultural Employment (Units)	Manufacturing Wage and Salary Employment (Units)	Unemployment Rate (Percent)
1980		999,000	923,000	65,100	210,050	7.7
1981		1,030,000	936,000	64,100	212,100	9.1
1982		1,018,000	919,000	63,440	195,625	9.8
1983		1,025,700	920,730	62,395	199,880	10.1
1984		1,044,000	951,000	61,600	209,750	8.9
1985*		1,051,180	960,100	46,250	210,317	8.6
1986		1,066,201	973,236	45,515	214,054	8.8
	Jan.	1,061,260	976,150	46,180	213,850	8.3
	Feb.	1,057,010	973,570	46,280	213,950	8.2
	March	1,048,294	965,017	46,307	213,717	8.0
	April	1,046,741	960,435	46,293	213,010	8.2
	May	1,046,726	961,633	45,905	214,100	8.1
	June	1,057,931	964,198	45,596	212,852	9.2
	July	1,069,571	970,811	45,368	213,733	9.1
	Aug.	1,072,731	971,380	45,149	213,366	9.4
	Sept.	1,076,489	976,446	44,863	214,600	9.2
	Oct.	1,075,395	975,600	44,721	215,169	9.2
	Nov.	1,089,354	986,864	44,829	214,999	9.3
	Dec.	1,092,914	996,719	44,684	215,309	8.7

*Note: Labor Force and Employment data for the period 1985 forward have been reestimated by the Employment Security Division. The reestimation resulted in relatively large revisions in Agricultural Employment, with revisions to a less degree in Total Employment and Civilian Labor Force data. Consequently, the data for 1985 forward are not comparable to that for the prior period.

PERSONAL INCOME

Quarterly Changes in Personal Income, Arkansas and United States

(Seasonally adjusted, Percent)

	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV	1985 Q-IV thru 1986 Q-I	1986 Q-I thru 1986 Q-II	1986 Q-II thru 1986 Q-III	1986 Q-III thru 1986 Q-IV
Arkansas	− 0.1	+ 1.9	+ 3.8	− 0.04	+ 0.4	+ 1.6
United States	+ 0.7	+ 1.8	+ 1.5	+ 1.5	+ 1.4	+ 1.0

Personal Income in Arkansas

(Seasonally adjusted, annual rate, Millions of dollars)

	1979	1980	1981	1982	1983	1984	1985	1986
Quarter,								
Jan-Mar	14,640	16,635^R	18,709^R	19,520^R	20,831^R	23,383^R	24,945^R	25,886^R
Apr-Jun	14,774	16,503^R	19,054^R	19,855^R	21,180^R	23,024^R	24,481^R	25,876^R
Jul-Sep	15,208	17,304^R	19,525^R	19,923^R	20,919^R	23,341^R	24,463^R	25,979
Oct-Dec	15,640	17,876^R	19,269^R	20,535^R	21,991^R	23,804^R	24,940^R	26,396^P
Annual	15,066	17,080^R	19,139^R	19,958^R	21,230^R	23,388^R	24,707^R	

^{R}Revised

^{P}Preliminary Estimate

INDUSTRIAL PRODUCTION

Quarterly Changes in Industrial Production
Arkansas and United States

(Seasonally adjusted, Percent)

	1985 Q-III thru 1985 Q-IV	1985 Q-IV thru 1986 Q-I	1986 Q-I thru 1986 Q-II	1986 Q-II thru 1986 Q-III	1986 Q-III thru 1986 Q-IV
Arkansas	+ 0.8	+ 1.3	+ 0.9	+ 1.3	+ 2.2
United States	+ 0.3	− 0.1	− 0.5	+ 0.5	+ 0.8

Value Added by Manufacture in Arkansas

(Seasonally adjusted, annual rate, Millions of dollars)

	1979	1980	1981	1982	1983	1984	1985	1986
Quarter								
Jan-Mar	5,902.0	6,553.6	7,167.6	7,474.8	7,884.9	8,834.6^{R}	9,302.6^{R}	9.569.1^{R}
Apr-Jun	6,052.2	6,415.0	7,388.1	7,569.1	8,131.9	8,958.1^{R}	9,285.0^{R}	9,656.5^{R}
Jul-Sep	6,135.9	6,688.3	7,601.8	7,581.8	8,398.0	9,086.4^{R}	9,369.8^{R}	9,786.2
Oct-Dec	6,299.6	6,942.7	7,589.5	7,746.9	8,522.0	9,176.1^{R}	9,446.5^{R}	9.998.0
Annual	6,097.4	6,649.9	7,436.8	7,593.2	8,234.2	9,013.8^{R}	9,351.0^{R}	9,752.5

^{R}Revised

CASH RECEIPTS FROM FARM MARKETINGS

Quarterly Changes in Cash Receipts, Arkansas and United States

(Seasonally adjusted, Percent)

	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV	1985 Q-IV thru 1986 Q-I	1986 Q-I thru 1986 Q-II	1986 Q-II thru 1986 Q-III
Arkansas	– 0.7	– 5.3	+ 7.7	– 12.9	– 2.3	+ 8.9
United States	– 1.6	+ 3.5	+ 11.7	+ 17.3	– 0.9	– 2.7

Cash Receipts from Farm Marketings in Arkansas

(Seasonally adjusted, annual rate, Thousands of dollars)

	1979	1980	1981	1982	1983	1984	1985	1986
Quarter								
Jan-Mar	3,199,192	3,506,548	3,005,850	3,367,339	2,696,208	3,412,423	3,307,857	2,918,875
Apr-Jun	3,050,693	2,848,242	3,690,087	3,650,780	2,583,833	3,262,655	3,285,170	2,850,378
Jul-Sep	3,759,532	3,227,283	3,735,907	2,781,091	3,057,172	3,261,541	3,109,958	3,103,336
Oct-Dec	3,245,303	2,855,084	3,173,621	3,275,041	3,023,897	3,235,944	3,349,909	
Annual	3,063,680	3,109,289	3,401,366	3,268,563	2,840,278	3,293,143	3,263,223	

WATERBORNE COMMERCE:
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM

Quarterly Changes in Total and Internal Tonnages

(Seasonally adjusted, Percent)

	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV	1985 Q-IV thru 1986 Q-I	1986 Q-I thru 1986 Q-II	1986 Q-II thru 1986 Q-III	1986 Q-III thru 1986 Q-IV
Total	+ 10.8	− 18.5	+ 66.1	− 27.1	− 11.7	+ 3.9
Internal	+ 8.0	− 14.2	+ 86.7	− 30.8	− 27.7	− 4.8

Freight Traffic

(Seasonally adjusted, annual rate, Thousands of short tons)

Time Period		Traffic Tonnages			
		Inbound	Outbound	Internal	Total[1]
1979		2,026	3,456	2,932	8,926
1980		1,611	4,643	2,408	9,133
1981		1,564	5,684	1,741	9,446
1982		1,520	4,611	1,561	8,258
1983		1,918	3,905	1,904	8,017
1984		2,128	4,264	2,433	9,490
1985		2,103	3,191	2,521	8,335
1986[2]		2,608	3,453	2,962	9,703
	Jan-Mar	3,240	4,636	4,671	12,786
	Apr-Jun	2,369	2,917	3,233	9,319
	Jul-Sep	1,984	3,255	2,337	8,232
	Oct-Dec	2,997	2,804	2,226	8,553

[1] Total tonnage includes "through traffic."

[2] Sum of quarters does not equal annual totals because of moving seasonal adjustment factor.

ARKANSAS CONSTRUCTION CONTRACTS

Residential Construction Contracts

(Seasonally adjusted, annual rate, Thousands of dollars)

	1979	1980	1981	1982	1983	1984	1985	1986
Quarter								
Jan-Mar	838,008	613,040	550,568	511,940	895,484	1,044,788	791,824	873,188
Apr-Jun	645,112	564,516	642,712	598,212	919,996	975,436	775,466	652,956
Jul-Sep	756,032	696,460	548,380	689,232	908,188	900,232	701,506	756,243
Oct-Dec	575,136	686,040	585,608	780,880	901,384	773,368	795,934	698,422
Annual	706,530	664,550	632,800	648,130	906,260	917,550	766,182	745,202

Nonresidential Construction Contracts

(Seasonally adjusted, annual rate, Thousands of dollars)

	1979	1980	1981	1982	1983	1984	1985	1986
Quarter								
Jan-Mar	371,300	289,236	356,916	376,064	269,324	417,860	368,124	445,068
Apr-Jun	420,520	349,804	278,808	210,008	353,504	437,076	411,933	331,551
Jul-Sep	296,012	396,316	259,592	317,844	389,684	543,684	477,483	573,567
Oct-Dec	441,984	390,148	311,048	220,548	473,460	481,360	563,974	311,774
Annual	381,809	355,100	302,100	279,600	370,100	467,700	455,378	415,490

THE MINERAL INDUSTRY OF ARKANSAS IN 1986

The value of nonfuel mineral production in Arkansas in 1986 increased nearly 10% to an estimated $281.8 million. Nationally, the State was a major producer of abrasives, bauxite, bromine and vanadium. Also contributing significantly to the State's Economy were construction minerals — stone and sand and gravel — but these minerals served regional and local markets. Arkansas ranked 27th in the Nation in the value of nonfuel minerals produced.

Output from bromine operations in southern Arkansas increased but remained less than capacity. Arkansas Chemical Corporation's El Dorado plant which closed late in 1985 was reopened in February of 1986. Ethyl Corporation reached agreement with the Dow Chemical Company to purchase certain assets of Dow's bromine chemical business. The acquisition, to be completed early in 1987, included Dow's bromine chemical plant at Magnolia as well as its brine field leases in the State. Ethyl planned to build a $10 million facility, with completion by mid-1987, to produce brominated flame retardant products at its chemical complex in Magnolia.

Reynolds Metals Company, citing high energy costs and low prices, kept its aluminum facilities at Arkadelphia and Jones Mill shut down. Bauxite output remained at reduced levels because of an oversupply of alumina. At midyear, Norton-Alcoa Proppants Company closed its recently expanded facilities at Fort Smith for an indefinite period as oil and gas exploration activities remained depressed. The facility had opened in July 1985 and had utilized feedstock from Alcoa.

Early in the year, Strategic Minerals Corporation took over the assets of Umetco Mineral Company with plans to reopen the vanadium facility near Hot Springs late in the year. The facility is expected to operate at 50% of capacity, utilizing residues from oil refineries as feedstock. The plant will produce vanadium pentoxide and vanadium trioxide.

During the year a milestone was reached as the 10,000th diamond was found at the Crater of Diamonds State Park near Murfreesboro.

Source: Adapted from U.S. Department of the Interior, "Mineral Industry Surveys," News release from the Tuscaloosa Regional Office of State Activities in cooperation with the Arkansas Geological Commission (15 January 1987).

TABLE 1
Nonfuel Mineral Production in Arkansas[1]

	1985		1986[p]	
Mineral	Quantity	Value (thousands)	Quantity	Value (thousands)
Clays thousand short tons	1,052	$ 10,769	1,050	$ 10,172
Gem stones	NA	200	NA	W
Sand and gravel:				
Construction thousand short tons	[e]8,500	[e]24,400	10,000	31,400
Industrial do	412	5,414	400	4,100
Stone:				
Crushed do	14,815	60,874	15,400	61,100
Dimension do	5	305	5	305
Combined value of abrasives, bauxite, bromine, cement, gypsum, lime, talc and pyrophyllite, tripoli (1986), and values indicated by symbol W	XX	154,735	XX	174,683
Total	XX	$256,697	XX	$281,760

[e]Estimated. [p]Preliminary. NA-Not Available. W-Withheld to avoid disclosing company proprietary data, value included with "Combined value" figure. XX-Not applicable.

[1] Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

EDITOR'S NOTE:

About our Labor Force Estimates Map

Basically, the map is a county map of Arkansas on which unemployment rates for a specific month are shown by spacial coding. Such two dimensional representations of three dimensional statistical distributions are known among geographers as choropleth maps — "choro" meaning *open space or place* (county) and "pleth" meaning *how many* (unemployment rate).[1] Thus, quantitatively similar data are grouped into classes each of which is represented by superposing a spacial symbol such as lining or crosshatching: in our usage, the three symbols are blanks, vertical lines, and crosshatches. Additionally, very heavily inked county borders are used in the map in this issue of the *Review* and that in Volume 19, number 3, to point out those Arkansas counties experiencing unemployment rates equal to or below the national average for the period shown.

The idea of choropleth maps seems straightforward enough but accuracy in representing the data distribution rests on reliably classing that data into quantitatively similar groupings. Classing methods have involved such statistical grouping procedures as quartile, equal interval, standard deviation, and natural breaks. Each of these methods can pose serious flaws depending on the asymmetry and peakedness of the data distribution. The computer has enabled classifiers to use a more detailed mathematical series of iterations called optimization classing which reliably provides the smallest variation within groups, the largest variations between groups, and the smallest total variance.[2]

Our previous unemployment rate maps have been constructed with the depiction of three classes based on natural breaks to give groupings of approximately 25 counties in each class. The map in this issue of the *Review* utilizes the optimization procedure to retain the three class representation of the county unemployment rate distribution and present the data in more homogeneous groupings. Each class, therefore, should be less subject to a misinterpretation of the quantitative similarity of its unemployment rate data.

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[1] J.K. Wright, "The Terminology of Certain Map Symbols," *The Geographical Review* Vol. 34 (1944), pp. 653-54.

[2] Richard M. Smith, "Comparing Traditional Methods for Selecting Class Intervals on Choropleth Maps," *Professional Geographer* Vol. 38 (February 1986) pp. 62-67.

ARKANSAS LABOR FORCE ESTIMATES
December 1986, Not Seasonally Adjusted

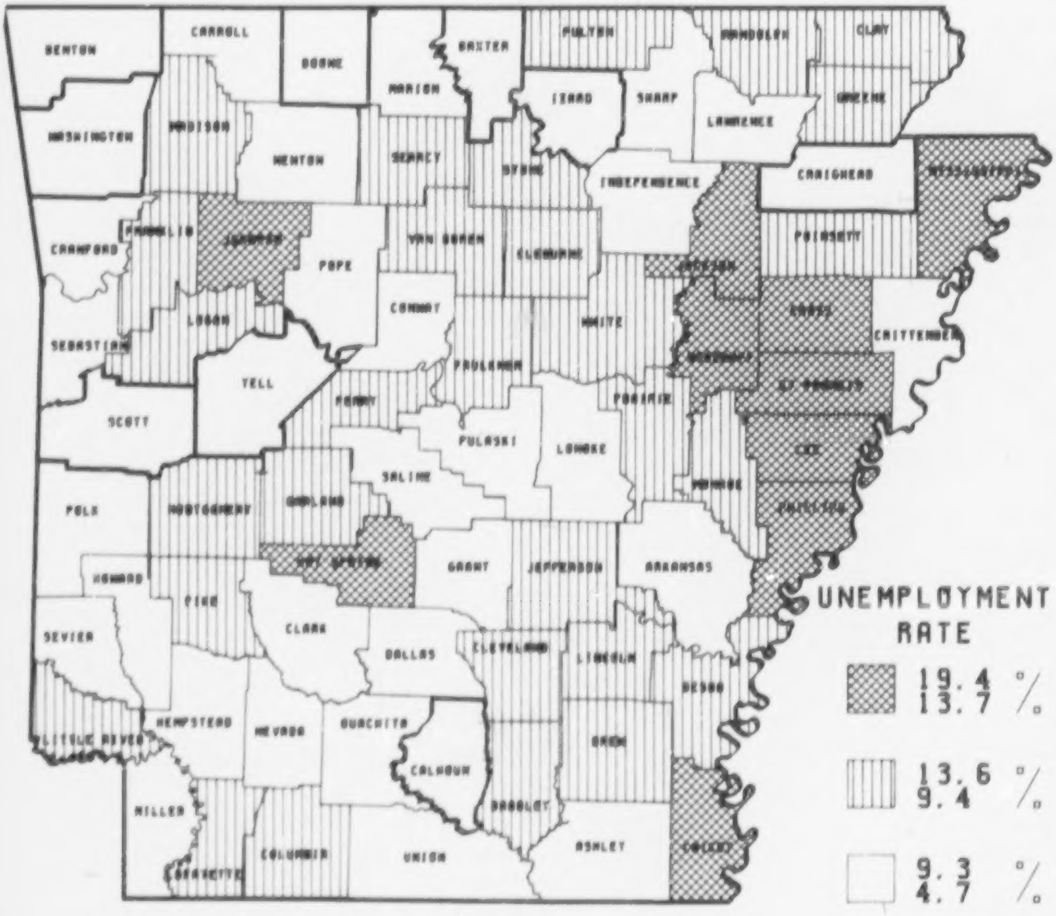
Area	Civilian Labor Force	Unemployment Rate	Total Employment
UNITED STATES	118,049,000	6.3	110,588,000
STATE OF ARKANSAS	1,067,200	8.7	974,400
Fayetteville-Springdale MSA	54,975	4.7	52,375
Fort Smith MSA	87,425	6.9	81,375
Little Rock-North Little Rock MSA	253,975	7.1	235,850
Pine Bluff MSA	35,775	9.8	32,275

County	Civilian Labor Force	Unemployment Rate	Total Employment	County	Civilian Labor Force	Unemployment Rate	Total Employment
Arkansas	9,800	7.1	9,100	Lee	4,450	18.0	3,650
Ashley	12,100	8.9	11,025	Lincoln	3,775	12.6	3,300
Baxter	10,475	6.2	9,825	Little River	5,325	10.3	4,775
Benton	44,200	5.0	42,000	Logan	8,850	11.6	7,825
Boone	14,225	5.8	13,400	Lonoke	19,375	9.3	17,575
Bradley	5,075	13.3	4,400	Madison	4,750	11.6	4,200
Calhoun	4,925	6.1	4,625	Marion	5,450	8.7	4,975
Carroll	10,275	8.8	9,375	Miller	19,450	8.0	17,900
Chicot	5,575	17.0	4,625	Mississippi	21,075	16.0	17,700
Clark	10,450	7.7	9,650	Monroe	4,425	11.3	3,925
Clay	7,775	12.5	6,800	Montgomery	2,575	13.6	2,225
Cleburne	7,775	10.6	6,950	Nevada	4,175	8.4	3,825
Cleveland	2,650	11.3	2,350	Newton	3,125	8.0	2,875
Columbia	12,800	10.0	11,525	Ouachita	13,400	8.2	12,300
Conway	7,500	9.0	6,825	Perry	4,150	10.8	3,700
Craighead	33,525	6.1	31,475	Phillips	10,625	16.9	8,825
Crawford	19,950	6.9	18,575	Pike	3,775	10.6	3,375
Crittenden	25,575	8.0	23,525	Poinsett	10,125	12.6	8,850
Cross	7,775	15.1	6,600	Polk	6,350	9.1	5,775
Dallas	4,125	7.3	3,825	Pope	21,600	6.4	20,225
Desha	6,725	11.5	5,950	Prairie	4,575	10.9	4,075
Drew	8,125	11.7	7,175	Pulaski	179,350	6.4	167,800
Faulkner	26,375	9.7	23,825	Randolph	6,900	10.1	6,200
Franklin	5,675	10.6	5,075	St. Francis	12,125	18.4	9,900
Fulton	3,575	9.8	3,225	Saline	28,875	7.7	26,650
Garland	29,825	10.7	26,625	Scott	5,425	5.5	5,125
Grant	5,950	9.2	5,400	Searcy	3,175	12.6	2,775
Greene	13,425	9.7	12,125	Sebastian	48,950	6.5	45,750
Hempstead	10,025	8.0	9,225	Sevier	6,550	8.4	6,000
Hot Spring	11,225	16.7	9,350	Sharp	5,500	7.3	5,100
Howard	5,875	7.2	5,450	Stone	3,900	11.5	3,450
Independence	14,825	7.9	13,650	Union	20,925	8.6	19,125
Izard	4,175	6.0	3,925	Van Buren	5,525	12.2	4,850
Jackson	8,425	15.7	7,100	Washington	54,975	4.7	52,375
Jefferson	35,775	9.8	32,275	White	24,275	12.2	21,325
Johnson	8,125	14.5	6,950	Woodruff	4,125	19.4	3,325
Lafayette	3,225	10.9	2,875	Yell	9,175	5.2	8,700
Lawrence	8,150	9.2	7,400				

Source: The Research and Statistics Section, Arkansas Employment Security Division.

LABOR FORCE ESTIMATES
DECEMBER 1986

IN DECEMBER, ARKANSAS' CIVILIAN LABOR FORCE DECLINED 25,000 TO TOTAL 1,067,200. TOTAL EMPLOYMENT DECREASED 20,400 TO TOTAL 974,400. UNEMPLOYMENT FELL BY 4,900 TO TOTAL 92,800. OF THE 75 COUNTIES, WASHINGTON HAD THE LOWEST UNEMPLOYMENT RATE AT 4.7 PERCENT AND WOODRUFF, THE HIGHEST AT 19.4 PERCENT. ALSO, THE UNEMPLOYMENT RATES IN 29 COUNTIES EQUALLED OR WERE BELOW THE STATE RATE. FOR THE MSAS, FAYETTEVILLE - SPRINGDALE HAD THE LOWEST UNEMPLOYMENT RATE AT 4.7 PERCENT AND PINE BLUFF HAD THE HIGHEST RATE AT 9.8 PERCENT. THE RATES FOR THE FORT SMITH AND THE LITTLE ROCK - NORTH LITTLE ROCK MSAS REACHED 6.9 AND 7.1 PERCENT, RESPECTIVELY.

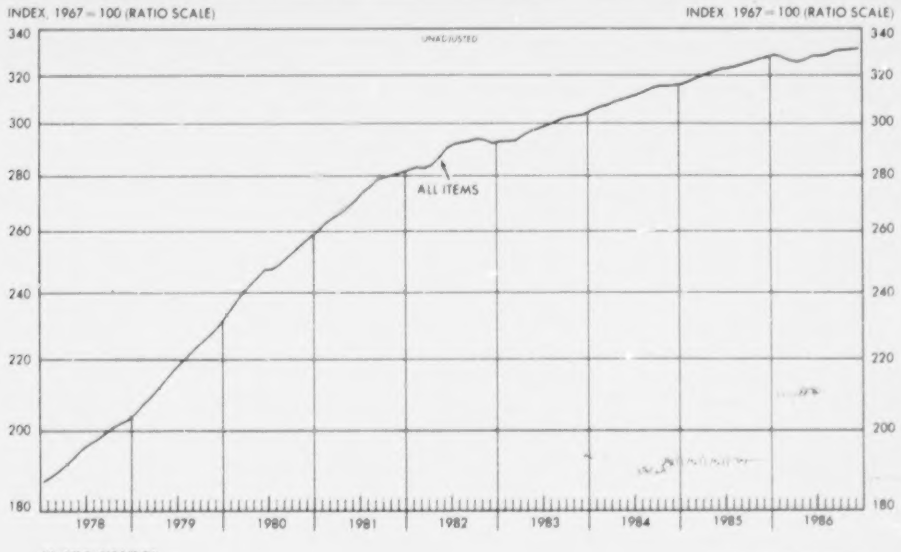

BENTON
CARROLL
BOONE
MARION
BAXTER
FULTON
RANDOLPH
CLAY
IZARD
SHARP
LAWRENCE
GREENE
WASHINGTON
MADISON
NEWTON
SEARCY
STONE
INDEPENDENCE
CRAIGHEAD
MISSISSIPPI
CRAWFORD
FRANKLIN
JOHNSON
POPE
VAN BUREN
CLEBURNE
JACKSON
POINSETT
CONWAY
WHITE
CROSS
CRITTENDEN
SEBASTIAN
LOGAN
FAULKNER
WOODRUFF
ST FRANCIS
TELL
PERRY
PRAIRIE
SCOTT
PULASKI
LONOKE
LEE
SALINE
MONROE
POLK
MONTGOMERY
GARLAND
PHILLIPS
HOT SPRING
GRANT
JEFFERSON
ARKANSAS
HOWARD
PIKE
CLARK
SEVIER
DALLAS
CLEVELAND
LINCOLN
DESHA
HEMPSTEAD
NEVADA
OUACHITA
CALHOUN
LITTLE RIVER
DREW
MILLER
BRADLEY
COLUMBIA
UNION
ASHLEY
CHICOT
LAFAYETTE
UNEMPLOYMENT RATE
19.4 13.7 %
13.6 9.4 %
9.3 4.7 %

BOUNDARY LINES OF COUNTIES HAVING AN UNEMPLOYMENT RATE LESS THAN OR EQUAL TO THE NATIONAL AVERAGE OF 6.5 %

UNIVERSITY OF ARKANSAS
COMPUTER GENERATED MAP

CONSUMER PRICES—ALL URBAN CONSUMERS

In December, the consumer price index for all urban consumers rose 0.2 percent, seasonally adjusted (0.1 percent not seasonally adjusted). The index was 1.1 percent above its year-earlier level.



SEE NOTE ON TABLE BELOW
SOURCE: DEPARTMENT OF LABOR

COUNCIL OF ECONOMIC ADVISERS

[1967 = 100, except as noted; monthly data seasonally adjusted, except as noted by NSA]

Period	All items [1] NSA	Food	Housing						Apparel and upkeep	Transportation			Medical care	Energy [2]	All items less food, energy, and shelter
			Total [1]	Shelter				Fuel and other utilities		Total [1]	New cars	Motor fuel			
				Total	Renters' costs (Dec 1982 = 100)	Homeowners' costs (Dec 1982 = 100)	Maintenance and repairs NSA								
Rel. imp. [3]	*100.0*	*18.5*	*37.9*	*22.3*	*7.3*	*14.4*	*0.5*	*8.1*	*5.0*	*21.4*	*3.4*	*5.5*	*6.5*	*11.3*	*48.0*
1979	217.4	234.5	227.6	239.7			256.4	239.3	166.6	212.0	166.0	265.6	239.7	275.9	191.5
1980	246.8	254.6	263.3	281.7			285.7	278.6	178.4	249.7	179.3	369.1	265.9	361.1	208.3
1981	272.4	274.6	293.5	314.7			314.4	319.2	186.9	280.0	190.2	410.9	294.5	410.0	228.1
1982	289.1	285.7	314.7	337.0			334.1	350.8	191.8	291.5	197.6	389.4	328.7	416.1	245.6
1983	298.4	291.7	323.1	344.8	103.0	102.5	346.3	370.3	196.5	298.4	202.6	376.4	357.3	419.3	258.4
1984	311.1	302.9	336.5	361.7	108.6	107.3	359.2	387.3	200.2	311.7	208.5	370.7	379.5	423.6	271.2
1985	322.2	309.8	349.9	382.0	115.4	113.1	368.9	393.6	206.0	319.9	215.2	373.8	403.1	426.5	281.6
1986	328.4	319.7	360.2	402.9	121.9	119.4	373.8	384.7	207.8	307.5	224.4	292.1	433.5	370.3	291.2
1985 Dec	327.4	315.2	356.2	391.9	118.5	116.2	373.7	396.5	208.3	323.9	218.4	379.4	415.7	430.3	286.2
1986 Jan	328.4	315.9	357.1	393.3	118.8	116.6	379.1	397.2	207.7	325.5	218.6	380.1	417.5	430.8	287.5
Feb	327.5	313.8	356.8	394.8	119.2	117.0	379.6	392.4	206.6	320.9	219.5	357.2	420.4	414.3	288.0
Mar	326.0	314.1	357.5	397.3	119.8	118.0	367.5	388.4	206.3	311.8	219.9	314.8	424.5	387.5	288.6
Apr	325.3	315.0	358.5	400.7	121.1	118.9	367.6	385.7	206.9	304.0	221.2	279.5	427.2	365.2	289.1
May	326.3	316.4	358.2	401.0	121.2	119.1	367.1	382.3	206.5	304.9	223.0	286.4	429.8	366.2	289.4
June	327.9	316.7	360.1	401.8	121.7	119.1	366.6	388.9	205.8	307.4	224.4	295.0	432.8	374.8	290.4
July	328.0	319.5	360.2	403.6	122.5	119.6	369.2	383.4	206.2	303.6	225.2	275.5	435.0	359.6	291.3
Aug	328.6	322.5	361.1	404.8	122.7	119.9	376.4	383.6	207.7	300.8	225.8	262.7	437.4	352.7	292.1
Sept	330.2	323.9	361.9	406.7	123.2	120.6	376.2	381.8	209.4	302.0	226.3	269.2	440.1	355.0	292.7
Oct	330.5	325.0	361.8	408.3	123.6	121.1	379.0	377.1	209.9	302.3	228.0	262.9	442.6	347.3	293.9
Nov	330.8	326.7	361.6	409.2	124.1	121.2	377.1	374.3	210.3	303.8	230.0	261.4	444.4	344.9	294.9
Dec	331.1	327.2	362.6	410.1	124.4	121.5	380.0	374.2	210.3	304.6	231.3	263.2	447.7	346.1	295.8

[1] Includes items not shown separately.

[2] Fuel oil, coal, and bottled gas; gas (piped) and electricity; and motor fuel. Motor oil, coolant, etc. also included through 1982.

[3] Relative importance, December 1985.

NOTE.—Data beginning 1983 incorporate a rental equivalence measure for homeownership costs and therefore are not strictly comparable with figures for earlier periods.

Source: Department of Labor, Bureau of Labor Statistics.

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The Arkansas Business and Economic Review is dedicated to information relevant to the business and economic environment of Arkansas. Thus, the editor invites manuscripts in the following general subject areas for consideration for publication:

1. Problems and issues of the Arkansas business community and economy;
2. Regional and industrial problems that have implications for the Arkansas economic community;
3. National business and economic issues of general interest to the people of Arkansas;
4. Business and economic theory; and
5. Articles of interest to both practitioners and academics in business.

Each manuscript should be double-spaced and submitted in triplicate. The length of the article should not exceed 20 pages including tables, appendices and references. Each chart or table should be camera ready, that is, an original on a separate page. References are to be listed on a separate page at the end of the submitted article and are to be numbered sequentially in order of textual citation with a corresponding superscript at the point of reference. The listing will be used as "Endnotes" to the published article and should be in footnote format.

For example, as a minimum, each endnote item will indicate:

For a book: list (as appropriate) author's first name, middle initial, and surname; the title of the book; publication data including place, publisher, and date; and the page number(s) in the citation.

For an article in periodical: list (as appropriate) the author's first name, middle initial, and surname; title of the article; name of the periodical; volume number or month and year for the issue; and page number(s) in the citation.

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A Publication of the University of Arkansas

Volume 20, Number 1, 1987

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Arkansas' Growth Industry: Retirement

A Case Study on the Effects of the Federal Override of State Usury Ceilings Pertaining to the Mobile Home Industry

A Forecast of Selected Energy Consumption and Transportation Patterns in Arkansas Revisited

Selected Arkansas and U.S. Economic Indicators

EDITORIAL AND PUBLICATION INFORMATION

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ARKANSAS' GROWTH INDUSTRY: RETIREMENT

Mary Jo Schneider[1]
Professor of Anthropology
University of Arkansas, Fayetteville

INTRODUCTION

Enticing retirees to move to Arkansas may be one of the best remaining strategies to improve Arkansas' economic wellbeing. Traditional choices for economic growth in Arkansas have been to try to attract manufacturing plants or to stimulate the farm economy. Unfortunately, both manufacturing and agriculture are extremely cyclical. They respond dramatically to the forces of international competition and fluctuations in the value of the dollar. Much of the employment generated by manufacturing and agriculture is low wage, and care must be taken to insure that the chemical wastes inevitably associated with manufacturing processes and modern farming techniques are not too damaging to the environment. In an economy which looks to "service" industries for growth and employment, the industry of the aged has been neglected. This oversight is likely to be corrected for two reasons. First, there are more elderly people living today than ever before. Second, they are more affluent and politically active.

THE ELDERLY AND THE RETIRED

Between 1950 and 1984, the American population aged 65 and over increased nearly 130 percent, from 12 million to 28 million. In 1950, the elderly made up 8 percent of the total population; and in 1984, the comparable figure was 12 percent. This growth is slowing today because of the slow birth rates in the 1920's and 1930s. However, in the year 2011, the first baby-boomers will reach age 65; and by 2030, one in five Americans will be elderly.

Older Americans are better off economically than they have been at any time in our nation's history. The incidence of poverty among the elderly was twice the national average in 1970; but, by 1984, the proportion of elderly below the poverty line was less than the national average. The main factor in that economic improvement was expanding Social Security benefits. Without Social Security, more than half of the elderly would have been in poverty. Arkansas' elderly are considerably less affluent than those elsewhere. Charles Longino estimated the 1985 average personal income of Arkansas' very old (aged 85 and above) to be $5,823, compared with a national figure of $8,100.[2] This leaves Arkansas' very old with the lowest personal incomes in the United States.

Elderly people today are more politically active than previous generations. People between the ages of 65 and 74 had the highest voting rate in the 1982 congressional elections. Sixty-five percent voted — more than double the rate for those in their twenties. The American Association for Retired Persons (AARP) boasts over 22 million members and has a well organized and successful lobby.

Social Security has a remarkably secure place in the national budget. It is supported by the older citizens, of course, who benefit directly from government transfer payments, but it enjoys support from the young as well, who want economic support in their own futures. Social Security makes possible independent living for elderly persons: a goal cherished by young and old alike.

Critics such as Samuel H. Preston, a sociologist with the Population Studies Center at the University of Pennsylvania, are beginning to charge that the well-being of senior citizens is coming at the expense of the young.[3] Census figures show that a child is nearly six times more likely than a senior citizen to be poor. Child suicide rates are rising, and repeated studies point out the declining quality of our educational programs. Sited as evidence, are declining scores on standardized tests, such as the SAT, as well as decreasing percentages of high school graduates. Elderly people have been better served by our institutions than have children. Children have few effective lobbyists and money that could be channeled into child nutrition programs, schools, and child health goes instead to elderly people.

Public retirement expenditures have accounted for an ever-increasing portion of the federal budget. In 1983, $217 billion was distributed among 15 million elderly persons, about $7700 per capita. Expenditures for the elderly in 1983 accounted for a larger proportion of the federal budget than did defense.

The percentage of personal income composed of unearned income keeps rising. Lloyd Bender, former economist with the U.S. Department of Agriculture, estimates that from 1970 to 1979, 40 percent of the increase in disposable income in the United States was from transfer payments, retirement benefits, and other unearned income.[4]

Retirement income can be an important instrument for economic development. Studies conducted in small towns in Missouri,[5] Oklahoma,[6] and Kentucky[7] showed that every dollar spent by retirees produced more than $2.00 in local income and business. Furthermore, Smith suggests that retirement income generates jobs much more efficiently than dollars earned from manufacturing, agriculture, or mining. Retirees spend a higher percentage of their incomes than younger people; and most of their expenditures are made near home, putting money back into the local economy.

Three years ago a group of researchers with the Economic Research Service at the U.S. Department of Agriculture[8] began to explore the possibilities of classifying the economic and social bases of the nonmetropolitan (non-Standard Metropolitan Statistical Area) counties in the United States. Nonmetropolitan counties tend to have economic profiles which differentiate them from one another. The seven county types set out by USDA were agriculture, mining, manufacturing, federal lands, government activity, poverty, and retirement.

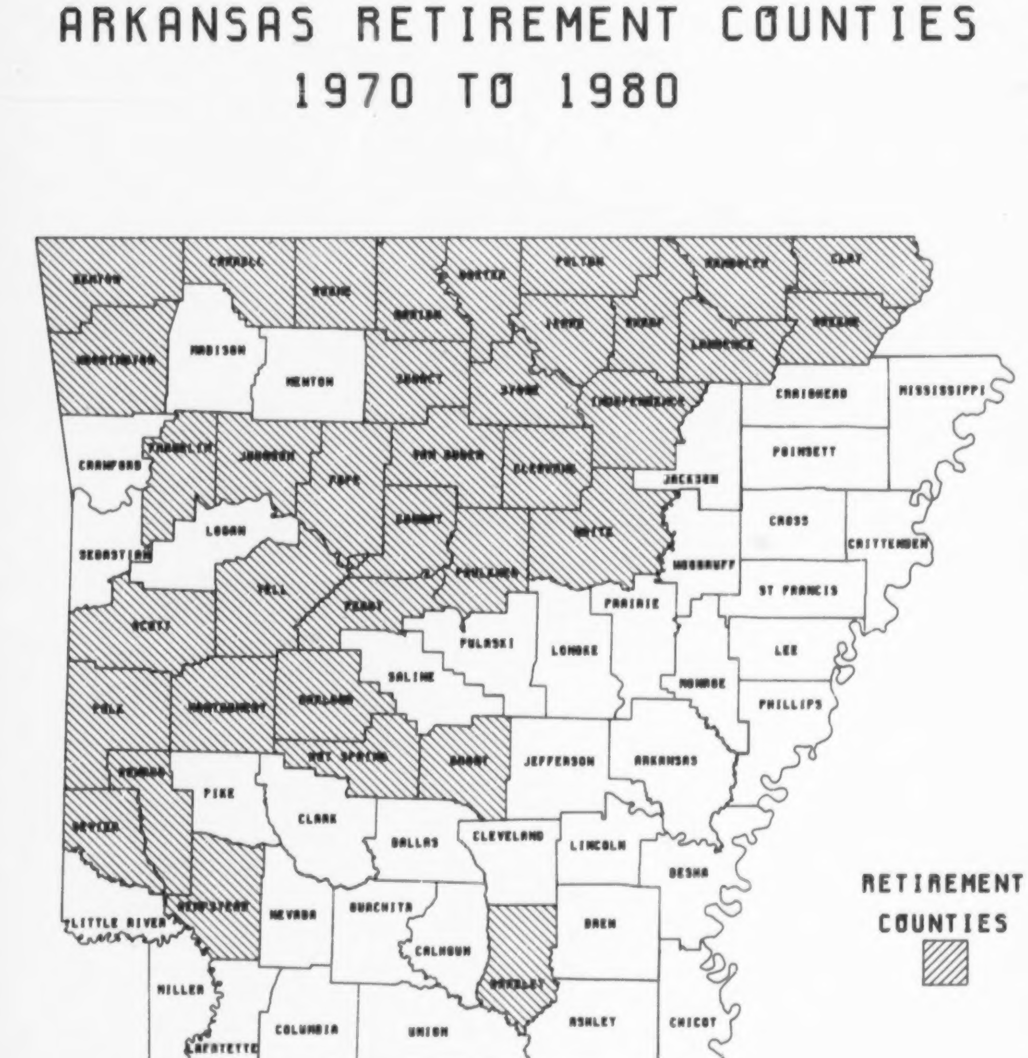
RETIREMENT COUNTIES

Retirement counties are those where, for the 1970 to 1980 period, net in-migration rates of people aged 60 or above were 15 percent or more of the expected 1980 population aged 60 and over. Net migration is calculated by subtracting actual population from expected population and then dividing that amount by the expected population. Five hundred fifteen of the 2,443 nonmetropolitan counties in the United States were classified as retirement counties. Of these, thirty-six were in Arkansas (Figure 1).

Retirement counties can be quite different from counties with a high proportion of elderly persons. A county with many elderly people may be the result of the out-migration of young and middle-aged people, rather than the result of in-migration of elderly persons from other areas who choose to move to another location in their retirement years.

To illustrate the difference between a retirement county and an area with a large percentage of elderly we need look only to Arkansas. Arkansas currently is second only to Florida in its percentage of older residents with about 14 percent of its pop-

FIGURE 1


ARKANSAS RETIREMENT COUNTIES
1970 TO 1980
BENTON
CARROLL
BOONE
MARION
BAXTER
FULTON
RANDOLPH
CLAY
WASHINGTON
MADISON
NEWTON
SEARCY
STONE
IZARD
SHARP
LAWRENCE
GREENE
INDEPENDENCE
CRAIGHEAD
MISSISSIPPI
CRAWFORD
FRANKLIN
JOHNSON
POPE
VAN BUREN
CLEBURNE
POINSETT
JACKSON
LOGAN
CONWAY
WHITE
CROSS
CRITTENDEN
SEBASTIAN
YELL
FAULKNER
WOODRUFF
ST FRANCIS
SCOTT
PERRY
PULASKI
LONOKE
PRAIRIE
LEE
SALINE
POLK
MONTGOMERY
GARLAND
MONROE
PHILLIPS
HOWARD
HOT SPRING
GRANT
JEFFERSON
ARKANSAS
PIKE
CLARK
SEVIER
DALLAS
CLEVELAND
LINCOLN
DESHA
LITTLE RIVER
HEMPSTEAD
NEVADA
OUACHITA
CALHOUN
DREW
BRADLEY
MILLER
COLUMBIA
UNION
ASHLEY
CHICOT
LAFAYETTE
RETIREMENT COUNTIES
▨
UNIVERSITY OF ARKANSAS
COMPUTER GENERATED MAP

Source: Adapted from chart, U.S.D.A., E.R.S, *The Diverse Social and Economic Structure of Non-Metropolitan America*, Rural Development Report No. 49, p. 19.

ulation aged 65 plus. Arkansas' standing comes not only from those older people lured to planned retirement communities such as Horseshoe Bend, Bella Vista, Cherokee Village, and Hot Springs Village but also from the heavy out-migration of younger Arkansans in the 1950s. Young Arkansans are no longer leaving the state in such large numbers, but young people are leaving the farmbelt states of the upper midwest. Changes in out-migration patterns lead Census Bureau statisticians to preduct that by 1990 Arkansas' ranking among the states with high proportions of elderly people will fall. However, even if Arkansas slips in its ranking, some of its counties will remain retirement counties so long as they continue to attract retirees.

Arkansas has been a magnet for retirees for some time. In every decade from 1940 on, people aged 70 and above have moved into the State. Since 1960, Arkansas has attracted people in the 60-69 age group as well.[9]

Of the twenty-five counties in the United States which attracted the most retirees from 1970 to 1980, three were in Arkansas: Baxter, Sharp, and Izard. The nation's 100 most popular retirement counties included four more Arkansas counties: Van Buren, Benton, Cleburne, and Marion.

Between 1970 and 1980, Baxter County had a 114 percent net in-migration rate for people aged 60 and over. Over the same period, Sharp County's net elderly population grew by over 105 percent; Izard County's, by over 90 percent; Van Buren County's, by 74 percent; Benton County's, by almost 69 percent, and Marion and Cleburne Counties', by over 50 percent (Figure 2). While these rates of growth are impressive, they pale in comparison to three Florida counties where rates of growth exceeded 230 percent. The high growth Arkansas retirement counties have at least three characteristics in common: all are located in the northern tier of the State, all are overwhelmingly white, and all are at least 50 percent rural.

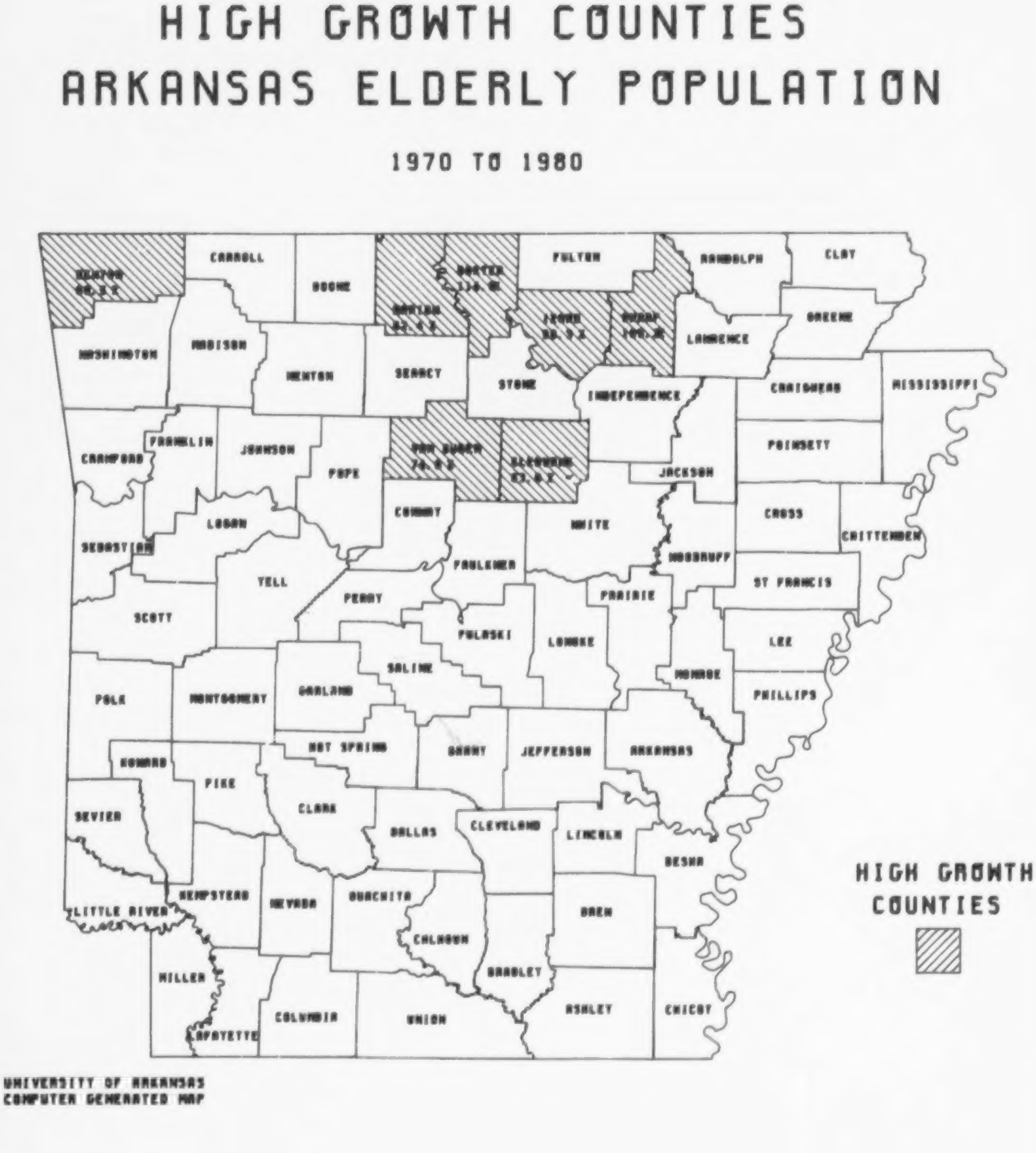
Between 1980 and 1984, the State of Arkansas grew by only 2.7 percent. The five counties which grew by 8 percent or more during this period were largely the same as those which were attracting the highest percentage of retirees. The 1980-84 high growth counties were Cleburne (10.7 percent), Van Buren (9.8 percent), Marion (9.1 percent), Benton (8.2 percent), and Baxter (8.0 percent) (Figure 3). If it were not for the in-migration of retirees, Arkansas would be experiencing lower rates of growth, and some counties which are growing rapidly would not be growing at all. Retirement in the 1980s has been the growth industry for the state.

Baxter County ranked number 14 in nonmetropolitan America as a retirement county between 1980 and 1984. Water recreation provided by Norfork and Bull Shoals Lakes is the attraction for retirees. To lure retirees, Sharp County depends upon Mammoth Springs and Cherokee Village which is a planned retirement community; and Izard County relies on Horseshoe Bend, which is another planned retirement community, to draw retirees.

Some northern tier counties are havens for retirees, while others are not. For example, Madison and Newton Counties, despite their scenic beauty, rurality, mountains, and streams, are classified by U.S.D.A. economists as Poverty Counties. Poverty Counties differ from their Retirement County neighbors in having a less favorable ratio of physicians to population and lower rates of growth. Capitalizing on their potential to attract retirees, as some neighboring counties have, may afford these counties an option to escape low-income status in the future.

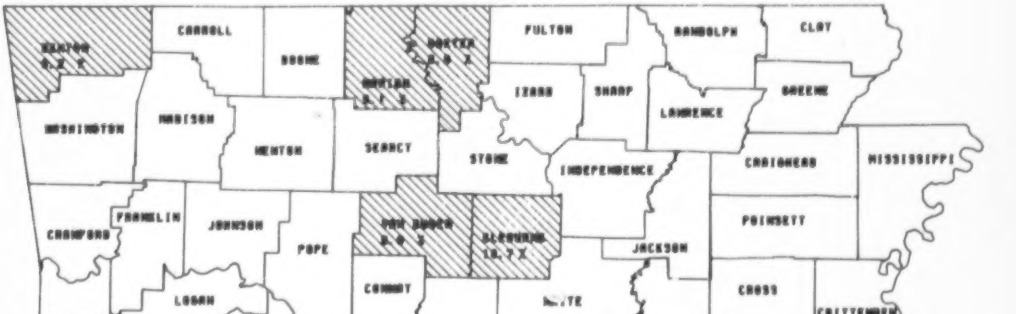
Planned retirement communities make significant economic contributions to selected Arkansas counties. Bella Vista, the largest of the Arkansas planned communities, spends more than 3.5 million dol-

FIGURE 2


HIGH GROWTH COUNTIES
ARKANSAS ELDERLY POPULATION
1970 TO 1980
BENTON
CARROLL
BOONE
MARION
BAXTER
FULTON
IZARD
SHARP
RANDOLPH
CLAY
WASHINGTON
MADISON
NEWTON
SEARCY
STONE
INDEPENDENCE
LAWRENCE
GREENE
CRAIGHEAD
MISSISSIPPI
CRAWFORD
FRANKLIN
JOHNSON
POPE
VAN BUREN
CLEBURNE
JACKSON
POINSETT
SEBASTIAN
LOGAN
CONWAY
WHITE
CROSS
CRITTENDEN
WOODRUFF
FAULKNER
TELL
SCOTT
PERRY
PRAIRIE
ST FRANCIS
PULASKI
LONOKE
LEE
SALINE
MONROE
POLK
MONTGOMERY
GARLAND
PHILLIPS
HOT SPRING
GRANT
JEFFERSON
ARKANSAS
HOWARD
PIKE
CLARK
SEVIER
DALLAS
CLEVELAND
LINCOLN
DESHA
HEMPSTEAD
NEVADA
OUACHITA
DREW
LITTLE RIVER
CALHOUN
MILLER
BRADLEY
COLUMBIA
UNION
ASHLEY
CHICOT
LAFAYETTE
HIGH GROWTH
COUNTIES
▨
UNIVERSITY OF ARKANSAS
COMPUTER GENERATED MAP

Source: Author's research.

FIGURE 3



HIGH GROWTH COUNTIES
ARKANSAS GENERAL POPULATION

1980 TO 1984

BENTON
CARROLL
BOONE
MARION
BAXTER
FULTON
RANDOLPH
CLAY
WASHINGTON
MADISON
NEWTON
SEARCY
STONE
IZARD
SHARP
LAWRENCE
GREENE
CRAWFORD
FRANKLIN
JOHNSON
POPE
VAN BUREN
CLEBURNE
10.7 %
INDEPENDENCE
JACKSON
CRAIGHEAD
MISSISSIPPI
POINSETT
SEBASTIAN
LOGAN
CONWAY
FAULKNER
WHITE
WOODRUFF
CROSS
CRITTENDEN
SCOTT
YELL
PERRY
PULASKI
LONOKE
PRAIRIE
ST FRANCIS
LEE
POLK
MONTGOMERY
GARLAND
SALINE
MONROE
PHILLIPS
HOWARD
PIKE
HOT SPRING
GRANT
JEFFERSON
ARKANSAS
SEVIER
CLARK
DALLAS
CLEVELAND
LINCOLN
DESHA
LITTLE RIVER
HEMPSTEAD
NEVADA
OUACHITA
CALHOUN
DREW
MILLER
COLUMBIA
UNION
BRADLEY
ASHLEY
CHICOT
LAFAYETTE
HIGH GROWTH COUNTIES
▨
UNIVERSITY OF ARKANSAS
COMPUTER GENERATED MAP

Source: Author's research.

lars each year in postage alone to mail free vacation offers to potential buyers. A fiscal impact analysis estimated that Hot Springs Village was responsible for 21.5 percent of the growth of Garland County and 1 percent of Saline County's growth between 1970 and 1983.[10] Hot Springs Village employs almost 400 people and consumer expenditures of residents generate enough money to produce 640 local jobs. The 15,000 families who visit annually under the marketing program contribute as much as 31 million dollars to the local economy.

Areas which attract retirees also attract younger people who come to work in trades and services catering to the retirees. It is for this reason that the demographic pyramid in retirement counties generally resembles counties where retirement is only a minor industry. Wage scales in industries which provide services to the elderly are often low but levels of employment are frequently high.

ARKANSAS' RETIREMENT INDUSTRY

The retirement industry in Arkansas differs from that found in other parts of the country. Nationwide, over 70 percent of retirement communities consist exclusively of apartments. But most retirees to Arkansas come to live in homes of their own. For some of these people, the problems of widowhood or declining health will eventually dictate a second move into an apartment. Retirees to Arkansas are attracted to the state because of lakes, scenic beauty, mild climate, recreational opportunities, and moderate living costs. Retirees do *not* move to Arkansas because of its well developed industry to meet the physical and emotional needs of older citizens.

If Arkansas wants to continue to attract retirees and to promote retirement as an industry, considerably more attention must be paid to the special needs and problems of elderly people. First of all, it must be recognized that only a small portion of the elderly want to move in their retirement years and the percentage who want to pursue a "retirement lifestyle" appears to be decreasing. The percentage of TIAA-CREF (Teachers Insurance and Annuity Association) recipients who reported that they moved since retirement fell from 48 to 43 percent between 1972 and 1982. A 1982 poll taken by TIAA showed that only about ten percent of their pensioners wanted to move when they retired. Certainly, TIAA recipients are not a representative sample of this nation's elderly people since most of them were or are college or university employees. The TIAA poll showed that men are more likely to want to move to pursue hobbies (golf, fishing), while women want to move only when their present homes have become too much of a burden — usually because of the onset of ill health or widowhood.

Today's pensioners are more sophisticated in their demands than their predecessors were.[11] The enticements to move must include much more than natural beauty and relaxation. More and more, sophisticated health services and lifetime care must be made a part of the equation. While health services in Arkansas' retirement counties are superior to those in neighboring counties, a 1979 study by University of Arkansas researchers Kohls and Hudson found that over half of the residents of Cherokee Village were dissatisfied with the quality of health care facilities available to them.[12] Cherokee Village residents, however, were happier overall than samples of elderly persons from Mountain Home and Heber Springs who did not live in planned retirement villages.

Market analysts suggest the sophisticated services demanded by today's elderly will result in decreased retirement building in Arkansas and the Sunbelt states and more in the major Frostbelt cities. Retirement communities in these cities will be targeted for affluent, realistic, elderly persons who want to be provided for when they "age out" of self-sufficiency. Food service, health care, and insurance will be bundled. These new "congregate care" communities are expected to double in the next five years because of demographic influences, lifestyle preferences, and reductions in medical benefits provided by the federal government.

If Arkansas expects to nurture its retirement industry, both planners in state government and private developers must recognize the increasing complexity of the requirements of retirees. As already noted, only a small portion of the elderly want to move when they retire. And an even smaller portion of them are willing to move to a place which fails to offer them the quality of lifetime care they desire.

In a day of shrinking options to improve the economic well-being of Arkansans, planners must consider retirement as one of the few good growth strategies. They must also look at the effects that other policies may have in enhancing or detracting from the attractiveness of the State to retirees. Manufacturing plants which pollute the air, land, or streams not only decrease the quality of life for Arkansans already here, but they may severely limit the State's potential to attract affluent retirees. Improving nursing homes, increasing the number of physicians trained in gerontological medicine, and maintaining or bettering our environmental quality should heighten the appeal of the State to retirees from other areas. Arkansans must recognize that providing services to elderly people has become a sophisticated business; if we are to have an edge on Frostbelt urban areas with their built-in advantages of sophisticated medical care and in-place affluent elderly, we cannot be complacent about our attractiveness to seniors. Instead we must aggressively lead the way in developing facilities that will appeal to the elderly people of the 1990s.

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[1] The author thanks Dr. Bernal L. Green of E.R.S., U.S. Department of Agriculture, and Jill Hopkins, University of Arkansas, Fayetteville, graduate student in Anthropology, for their help in preparing this paper.

[2] Charles Longino, "A State by State Look at the Oldest Americans," *American Demographics*, 8(11) November 1986, p. 39-42.

[3] Samuel H. Preston, "Children and the Elderly: Divergent Paths for America's Dependents," President's Address to the Population Association of America, Minneapolis, MN, 1984.

[4] Lloyd D. Bender, "The Role of Services in Regional Development Policies," Unpublished MS., 1985.

[5] Floyd K. Harmston, "A Study of the Economic Relationships of Retired People and a Small Community," *Regional Science Perspectives* 11(1), 1981.

[6] Gerald A. Doekson and Vanessa Lenard, "The Impact of Elderly on the Economic Base of a Community," paper presented at the Ozark Regional Commission's Governors Conference on Aging, n.

[7] Eldon D. Smith, Merlin M. Hackbart, and Johannes Van Veen, "A Modified Regression Base Multiplier Model," *Growth and Change* 12(3) 1981, pp. 17-22.

[8] U.S. Department of Agriculture, E.R.S., *The Diverse Social and Economic Structure of Nonmetropolitan America*," By Lloyd D. Bender et al., Rural Development Research Report Number 49 (Washington, D.C.: Government Printing Office, 1985).

[9] Donald E. Voth, "Impact of Migration on Arkansas," lecture presented at the Center for Continuing Education, March 15, 1984.

[10] Joe E. Yates, "Fiscal Impact Analysis: Hot Springs Village," MS. Prepared for Cooper Communities, Inc., July 1983.

[11] Martha Farmsworth Riche, "Retirement's Life Pioneers," *American Demographics* 8(1) 1986, pp. 42-44, 50, 52-54, 56.

[12] James M. Kohls and Gerald T. Hudson, "The Older Citizens in Three Arkansas Communities," Arkansas Agricultural Experimental Station Bulletin 833, 1979.

A CASE STUDY ON THE EFFECTS OF THE FEDERAL OVERRIDE OF STATE USURY CEILINGS PERTAINING TO THE MOBILE HOME INDUSTRY

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INTRODUCTION

Prior to 1980, Arkansas mobile home financing was constrained by a 10 percent usury ceiling which was below the then prevailing national manufactured home credit rate of 12.99 percent extended by commercial banks.[1] In 1980, however, HR Bill 4998 and The Depository Institutions Deregulation and Monetary Control Act removed all state usury ceilings and restrictions on discount points or other loan fees.[2] This study examines the impact of the federal override of the Arkansas usury rate on mobile home financing to determine whether the market responded in accord with economic theory expectations.

Under economic theory, a below-market usury ceiling will limit the ability of a credit vendor to adjust the risk/return relationship in a profitable manner. That is, once the constrained rate falls below the prevailing market rate, credit vendors may either lose money and exit the market or continue to maintain a credit extension program by establishing more restrictive non-credit terms such as credit fees, related product pricing, higher down payments, and shorter maturities.

Removal of the ceiling on mobile home lending should have a reverse effect. The 1980 federal override of the usury law should result in an expansion of credit availability in the market for mobile home dealers as well as purchasers. Credit expansion for consumer purchasers should be evidenced by greater financing sources for mobile homes, less restrictive non-interest credit terms on down payments and loan maturities, and fewer loan applicant rejections for mobile home dealer credit. For mobile home dealers, expanded availability of credit should be evidenced by reduced holdback requirements[3] and acquisition fees[4] on installment loan contracts discounted to other lenders, as well as a decline in full recourse agreements[5] on discounted installment loan contracts in default.

While previous studies have analyzed the impact of usury ceilings on housing starts and mortgage terms, few have dealt with the mobile home market.[6] Specific attention to this market is warranted because mobile homes accounted for approximately 82 percent of the under $50,000 single family housing market in 1983.[7] Moreover, as indicated in Table 1, the percentage increase of mobile home housing units over the past number of decades has far outstripped the percentage increase in total housing units.[8]

In addition to analyzing the effects of the usury law override on purchasers of mobile homes, this study also examines the impact on mobile home dealers. Somewhat unique among housing market participants, mobile home dealers not only

TABLE 1
EXISTING HOUSING UNITS (000s)

	1960	1970	1980	Fall 1983
All housing units	58,326	68,672	88,411	93,519
% increase	--	17.7	28.7	5.7
Mobile home units	767	2,073	4,416	3,999
% increase	--	170.3	113.0	−.1

sell the dwelling unit, but also, in many cases, provide consumer financing using an installment contract. The installment contracts originated by mobile home dealers are then routinely discounted to either finance companies or commercial banks, usually in conjunction with a floorplan inventory financing arrangement. As such, the mobile home dealer must devise a credit policy which provides a profitable inventory turnover and an acceptable risk/return trade-off on credit sales.

It is also anticipated that results of this study will shed some light on whether consumers benefitted from a statutory ceiling on mobile home interest rates. Economists such as George Stigler have often refuted the idea that public welfare is enhanced as a result of industry restrictions.[9] If credit availability is expanded when the restrictive rate ceiling is removed, then study findings will be in accord with current economic theory.

METHODOLOGY

During 1979 and August 1983, two comprehensive surveys of all members of the Arkansas Mobile Home Dealers Association were undertaken. The surveys concentrated on mobile home credit with two major areas of emphasis: credit terms extended by mobile home dealers to purchasers under installment contracts, and credit terms extended by banks and finance companies to dealers on installment contracts sold to them. Response rates to the 1979 and 1983 surveys were 41 percent and 36 percent, respectively. Respondents to both surveys were judged to be representative of the Arkansas mobile home dealer population.

Descriptive statistics were calculated for the response data. Hypotheses regarding the effects of the federal override were developed and tested using two sample t-tests of the mean responses to the two surveys. The level of significance was set at .05 to determine whether the mean responses in the 1983 survey were significantly different from the mean responses in the earlier survey.

RESULTS: MOBILE HOME DEALER - CONSUMER RELATIONSHIPS

It was hypothesized that the increase in allowable interest rates from 10 percent to a national market rate would expand the availability of mobile home credit. Evidence of variations in the supply of credit was obtained by examining changes in method of payment (cash, installment contracts, or direct loans); non-interest credit terms of installment contracts (loan maturity and down payment requirements); and dealer credit applicant rejection rates.

As t-test results indicate in Table 2, a shift in the form of consumer payment for new mobile homes occurred during the period 1979-1983. As expected, both average cash and average installment loan sales as a percent of total sales declined significantly. Consistent with these findings, average direct loan sales increased significantly. In 1979, only 31.8 percent of the

TABLE 2
MOBILE HOME DEALER - CUSTOMER CREDIT TERMS (1979 and 1983)

	1979	1983	t statistic
Average Cash Sales as a Percent of Total Sales	27.2	13.5	7.38*
Average Direct Loan Sales as a Percent of Total Sales	27.4	52.1	− 6.14*
Average Installment Sales as a Percent of Total Sales	45.4	34.4	4.52*
Average Interest Charge on Installment Credit	10.0	14.9	−27.95*
Average Rejection Rate on Installment Credit	41.7	33.8	.94
Average Minimum Required Downpayment	13.6	10.1	2.47*
Average Maturity on Installment Credit (in months)	107.0	164.7	−11.34*

*marks significance at the .05 level.

respondents indicated that direct loan sales accounted for 71 ~~percent or more of~~ total dollar sales. By 1983, however, 53.9 percent of the respondents reported that direct loans accounted for 71 percent or more of their total dollar sales. This increase is further highlighted by noting that for dealers who had direct loans accounting for 91 percent or more of total dollar sales, the percentage increased from 9.1 percent in 1979 to 46.2 percent in 1983.

Summary statistics provide support for the hypothesis that higher interest rates expanded the availability of mobile home credit. Consumers were not as dependent upon savings and current income to provide the full cash price nor upon dealer originated installment financing. As evidenced by increased direct loan sales, alternative financing in the form of direct loans from other lenders provided the buyer with expanded consumer choice in the financing of manufactured home purchases.

Evidence suggests that the post 1980 increase in interest charges allowed dealers to offer more accommodating non-interest credit terms. As expected, average maturity on dealer originated installment contracts increased from 107.7 months to 164.7 months. Predictably, as interest rates on installment contracts increased, the average minimum downpayment required decreased significantly.

In addition to easing non-interest credit terms, the data suggests that Arkansas mobile home dealers also lowered credit standards after the federal override. The mean rejection rate on installment credit applications declined significantly from an average of 41.7 percent in 1979 to an average of 33.8 percent in 1983. In 1979, 31.7 percent of the responding dealers had a rejection rate greater than 50 percent, but none of the 1983 dealers had a rejection rate greater than 50 percent.

RESULTS: MOBILE HOME DEALER - LENDER RELATIONSHIPS

Installment contracts which mobile home dealers originate may be either held or sold to a lender. Sale of installment contracts are a means by which the dealer can improve cash flow and reduce credit costs.

In cases where the contracts are sold, lenders may impose full recourse requirements, discount or acquisition fees, and dealer reserve holdback requirements. All of these constraints limit dealer ability to adjust credit terms profitably. It was hypothesized that with the preemption of the Arkansas usury ceiling, such restrictive provisions would be eased or eliminated.

T-test results in Table 3 pertain to dealer responses to questions about the sale of installment contracts. Although fewer dealers were selling contracts to lenders in 1983, the use of full recourse requirements declined to 50 percent from 75 percent in 1979. In addition, dealer reserve requirements were virtually eliminated for those responding to the 1983 survey. Reserves withheld ranged from $450.00 to $750.00 in 1983, and from $750.00 to $3,150.00 in 1979. The average reserve withheld declined significantly from $1,680.00 in 1979 to $600.00 in 1983.

Due primarily to a decrease in dealer reserve requirements, the average dollar amount received by the dealer on a $15,000 contract sold to a lender increased over the 1979-1983 period from $13,452 to $14,663.[10] Ceterus paribus, the increase in net amount received on a contract sold to a lender would allow Arkansas mobile home dealers to lower retail prices. In the 1979 survey, 96 percent of the respondents indicated that if dealers could write installment contracts carrying the national market rate of interest, dealers would be willing and able to sell mobile homes at lower contract prices. In the 1983 survey, 86 percent of the dealer respondents noted that, following the 1980 federal override, they had lowered prices.

Contrary to expectations, a larger percentage of respondents were subject to an acquisition fee in 1983 than in 1979. Additionally, for those dealers subject to an acquisition fee, the average amount increased from $232.50 in 1979 to $311.11 in 1983. The modal acquisition fee, however, declined from $200.00 in 1979 to $100.00 in 1983. These unexpected findings may reflect an industry shift in selling installment contracts to finance companies rather than to commercial banks. It is also possible that the 1983 data was

TABLE 3
MOBILE HOME DEALER - LENDER CREDIT TERMS (1979 and 1983)

	1979	1983	t statistic
Percent of Respondents Selling Contracts to a Lender	95.45	84.62	--
Average Percent of Contracts Sold to a Lender	82.5	82.92	− .05
Percent of Respondents Subject to Acquisition Fee	60.0	75.0	--
Average Acquisition Fee ($)	232.50	311.11	− .87
Percent of Respondents Subject to Dealer Reserve	72.73	15.38	--
Average Dealer Reserve ($)	1,680.00	600.00	--
Average Dollar Amount Received on Contracts Sold ($)	13,452.00	14,663.00	−4.66*
Percent of Respondents Subject to Recourse	75.00	50.00	--

*marks significance at the .05 level.

skewed by two dealers reporting acquisition fees of $900.00.

SUMMARY AND CONCLUSIONS

This study examined changes in the credit policies adopted by Arkansas mobile home dealers with consumer purchasers and lenders who purchased their installment contracts following the 1980 federal preemption of the state's 10 percent usury ceiling. Examined were changes in the consumer's source of mobile home financing, dealer credit standards and terms, and credit terms received by dealers on installment contracts sold to a lender. T-test results of mean responses to the 1979 and 1983 surveys generally confirm economic theory expectations that elimination of a restrictive usury ceiling expands the availability of credit.

The expansion of mobile home credit should directly benefit lower income consumers and first home purchasers. In the last decade, we have experienced rapidly escalating prices on new construction and resales of traditional stick built homes.[11] Higher prices on conventionally constructed homes and the trend away from fixed rate mortgages completely eliminates many lower income consumers from the housing market. As a result of the federal preemption, mobile homes offer a more affordable home ownership alternative to conventionally constructed homes. Lower credit standards and minimum downpayment requirements coupled with longer contract maturities result in more families qualifying for credit and being able to purchase their own mobile homes. Thus, it appears that Arkansas mobile home consumers gained rather than lost purchasing power when the usury ceiling was removed in 1980.

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[1] *Federal Reserve Bulletin*. June, 1982.

[2] From January 1, 1980 through March 31, 1980, state usury ceilings were removed under HR 4998 (Title 1-Consumer Services and Usury). The override was continued by *The Depository Institutions Deregulation and Monetary Control Act of 1980* after April 1, 1980.

[3] Dealer reserve holdback represents a portion of installment contract proceeds which are withheld from the dealer by the lender purchasing the contract. In the event of losses under a purchased contract, the lender may charge against the reserve account. As contracts are paid in full by consumer borrowers, the dealer is refunded a proportionate amount from the reserve.

[4] Acquisition fees may be either a pre-determined amount per contract or a percentage of contract face value.

[5] Under a full recourse arrangement, the dealer sells an installment contract to a lender but retains full responsibility in the event of default by the consumer under the contract. The dealer must repurchase the contract from the lender if default occurs.

[6] Ira Epstein and Brian Dittenhafer, "A Preliminary Investigation into the Effects of the Federal Override of State Usury Ceilings on the Supply of Mortgage Funds by FSLIC-Insured Savings and Loans in N.Y. and N.J.," *American Real Estate and Urban Economics Association Journal*, Vol. 8, No. 4, Winter, 1980, pp. 370-386.

Lawrence Smith, "An Analysis of the Effects of the Removal of the Yield Ceiling on Federally Insured Mortgages in Canada," *Journal of Finance*, Vol. 32, No. 1, March 1977, pp. 195-201.

Donna Vandenbrink, "The Effects of Usury Ceilings," *Economic Perspectives*, Federal Reserve Bank of Chicago, Midyear, 1982, Vol. 1, No. 1, pp. 44-45.

[7] Standard & Poor's Corporation, *Standard & Poor's Industry Surveys*, Housing & Construction, 1984.

[8] U.S. Bureau of the Census, *Statistical Abstract of the United States 1985*, 105 edition, Table 1310, p. 731.

[9] George J. Stigler, "The Theory of Economic Regulation," *Bell Journal of Economics and Management Science* 2, 1971, pp. 1-21.

[10] Average acquisition fees and dealer reserve requirements were more prevalent and higher on installment contracts sold to a finance company than a commercial bank. Over 75 percent of the respondents received full face value on contracts sold to a bank, whereas only 25 percent of the respondents who sold contracts to a finance company received full contract value.

[11] National Association of Realtors, *Existing Home Sales 1983*, Chicago, Ill., Tables 6 and 7, pp. 8-9.

A FORECAST OF SELECTED ENERGY CONSUMPTION AND TRANSPORTATION PATTERNS IN ARKANSAS REVISITED

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INTRODUCTION

Since the onset of an energy crisis in 1973-74, energy has emerged as a vital concern to most Americans. If the patterns experienced prior to 1973-74 are examined, economic growth appears normal; however, this growth has turned out to be highly sensitive to changes in the price of oil. (The airline industry, for example, faced staggering increases in the variable costs of flights simply because the price of jet fuel tripled over a relatively short period.) Positive governmental policy during much of the seventies was hindered by uncertainty surrounding the putative cause of shortages. Today, the crisis mentality of the 70s has been replaced by a scenario of multiple energy options, i.e., free market and a temporary surplus of crude oil. Two long-term realities, however, are readily apparent. First, increasingly long lead times are required for the planning and construction of energy facilities and/or the introduction of substitute fuels; second, we are in an era of increasing resource scarcity and expensive substitutes with investment capital and natural resources being directed to the energy sector at the expense of other sectors.[1]

The fundamental purpose of this brief study is to identify certain statistical relationships between several variables associated with energy consumption in Arkansas. These relationships were initially examined in the *Arkansas Business & Economic Review* in 1975.[2] Based on data examined, together with pertinent relationships, several recommendations appear to be in order that should assist public policy makers of Arkansas with any revised plans for future energy consumption. In this regard the following areas are succinctly examined: (1) is there an "energy problem"; (2) impact of an "energy problem"; and (3) energy consumption patterns in Arkansas.

IS THERE AN ENERGY PROBLEM?[3]

Many persons believe the problem of oil supply has either been solved or is not real. This viewpoint is based on the observation that short-term equilibrium has been reached in oil supply and demand as the 800 percent rise in oil price from 1973-1983 reduced consumption and motivated producers to seek substantial profits by flooding the world with crude oil. Also the price of crude has recently declined precipitously. Table 1 illustrates that in major western economies, oil dominates the energy supply indicating a continuing vulnerability to supply disruptions years after the massive oil price increases of 1973. It is also quite clear that developing nations will rely more and more on oil for growth, thus competing with the industrialized nations. Oil is a finite resource, and the current price level for crude oil is a temporary aberration.

TABLE 1[4]
PRIMARY ENERGY CONSUMPTION OF THE WORLD, 1980

	World	Major Western Economies	Centrally Planned Economies	Developing Countries
Solids	1,840	740	960	140
Liquids	3,100	1,850	730	520
Gas	1,170	710	370	90
Nuclear	170	140	25	5
Renewables	420	270	80	70
TOTAL	6,700	3,710	2,165	825

IMPACT OF AN ENERGY PROBLEM

The major economic trends documented after the 1973 quadrupling and 1979 doubling of oil prices are as follows:

(1) economic growth rates in western economies which averaged 5 percent from 1960-1973 dropped to zero following the embargo and price increase, averaged 2.3 percent between 1973 and 1979, and averaged less than 1 percent from 1980-1983;

(2) inflation which had run at 4 percent from 1960-1973, increased to 10 percent for 1973-1981;

(3) after the 1979 oil price increase, consumer prices rose by about one-third;

(4) total unemployment in western economies increased by 7.5 million after the 1973 price increase and between the 1979 increase and 1982, 11 million more workers lost their jobs;

(5) there has been a cutback in some transportation services. Higher fuel prices have also restricted market mobility and have been shifted unevenly to the final consumer.[4]

ENERGY CONSUMPTION AND TRANSPORTATION PATTERNS IN ARKANSAS

There are eight interrelated variables originally examined in the 1975 study that provide insight to public policy makers in formulating future energy planning for Arkansas. These include: (1) motor fuel usage, (2) new housing units authorized, (3) special fuel usage, (4) agriculture consumption of petroleum products, (5) electric energy production, (6) motor vehicle registration, (7) natural gas output, and (8) population. Each of these variables represent important factors regarding present and future energy and transportation policies.

To ascertain the linear statistical relationships between the variables, seven regression models were employed.

	Dependent Variable	**Independent Variable**
Model I	X_1	X_3, X_4, X_5, X_6, X_8
Model II	X_2	X_5, X_6, X_7, X_8
Model III	X_3	X_1, X_4, X_6, X_8
Model IV	X_4	X_1, X_3, X_6, X_8
Model V	X_5	X_2, X_7, X_8
Model VI	X_6	X_1, X_3, X_4, X_8
Model VII	X_7	X_2, X_5, X_8

Each linear equation used was of the form:

$$\begin{aligned}
X_1 &= C_0 + C_3X_3 + C_4X_4 + C_5X_5 + C_6X_6 + C_8X_8 \\
X_2 &= C_0 + C_5X_5 + C_6X_6 + C_7X_7 + C_8X_8 \\
X_3 &= C_0 + C_1X_1 + C_4X_4 + C_6X_6 + C_8X_8 \\
X_4 &= C_0 + C_1X_1 + C_3X_3 + C_6X_6 + C_8X_8 \\
X_5 &= C_0 + C_2X_2 + C_7X_7 + C_8X_8 \\
X_6 &= C_0 + C_1X_1 + C_3X_3 + C_4X_4 + C_8X_8 \\
X_7 &= C_0 + C_2X_2 + C_5X_5 + C_8X_8
\end{aligned}$$

Where:

X_1 = Motor fuel usage (in thousands of gallons)
X_2 = Number of new housing units authorized
X_3 = Special fuel usage (in thousands of gallons)
X_4 = Agricultural use of gasoline (in thousands of gallons)
X_5 = Electric energy production (millions of kw. hours)
X_6 = Motor vehicle registrations (autos, buses, and trucks in thousands)
X_7 = Natural gas production (millions of cubic feet)
X_8 = Population

Actual data for the eight variables for Arkansas were gathered for the period 1972 through 1982. Model I revealed a linear equation of the type shown below:

MODEL I

$$X_1 = 80518 + 2{,}39\ X_3 - 17.5\ X_4 - 10065\ X_5 - 806\ X_6 + 1019\ X_8$$

Coefficient
T-ratios = .06 .90 −1.26 −.54 −1.40 1.25

The F statistic for Arkansas was significant at the .01 level. The r^2 and the individual correlations between the dependent variable motor fuel and other variables is summarized in Table 2:

TABLE 2
MODEL I RELATIONSHIPS

r_2	r_{13}	r_{14}	r_{15}	r_{16}	r_{18}
.91	.58	−.86	.35	.58	.68

As can be seen, the relationship between motor fuel and other variables has declined since the original study was published in 1975.[5]

Relative to Model II, where new housing units authorized served as the dependent variable, the following equation lines were computed:

MODEL II

$$X_2 = 32.1 + .522 X_5 - .0069 X_6 - .00005 X_7 - .02 X_8$$

Coefficient
T-ratios = .21 .53 .16 .55 −.37

Regarding new vehicle registration and the other variables under observation, Model III was computed thusly:

MODEL III

$$X_3 = 77230 + .136 X_1 + 2.77 X_4 + 317 X_6 = - 244 X_8$$

Coefficient
T-ratios = .21 .83 .59 2.65 −1.01

The F statistic, all significant at the .01 level, was computed. With respect to r^2 and individual correlations, Table 3 summarizes the correlation of the Model III relationships.

TABLE 3
MODEL III RELATIONSHIPS

r_2	r_{31}	r_{34}	r_{36}	r_{38}
.97	.58	−.85	.98	.93

Model IV treated agricultural use of gasoline as the dependent varible and the following equations were thus computed:

MODEL IV

$$X_4 = 36016 - .0302 X_1 + .0372 X_3 - 23.9 X_6 + 16.4 X_8$$

Coefficient
T-ratios = .95 −2.56 .59 −1.12 .53

An F statistic was significant at the .05 level, and individual correlations were negative. Table 4 recapitulates model IV relationships.

TABLE 4
MODEL IV RELATIONSHIPS

r_2	r_{41}	r_{44}	r_{46}	r_{48}
.95	.86	−.85	.88	.91

In Model V, electric energy production represented the dependent variable.

MODEL V

$$X_5 = -58.5 - .219 X_2 + .0004 X_7 + .0315 X_8$$

Coefficient
T-ratios = −2.51 .89 .91 3.52

The F statistic was significant at the .001 level; individual correlations between electric energy production and other variables as well as the r^2s are summarized in Table 5.

TABLE 5
MODEL V RELATIONSHIPS

r_2	r_{52}	r_{57}	r_{58}
.95	.57	.60	.83

Motor vehicle registration in terms of total automobiles, trucks, and buses for the various states was the dependent variable in Model VI.

MODEL VI

$$X_6 = -521 - .0006\,X_1 + .0021\,X_3 - .0124\,X_4 + 1.08\,X_8$$

Coefficient
T-ratios = −.56 −1.68 2.65 −1.12 2.72

The F statistic was significant at the .001 level. Table 6 illustrates the model VI relationships.

TABLE 6
MODEL VI RELATIONSHIPS

r_2	r_{61}	r_{63}	r_{64}	r_{68}
.99	.58	−.98	.88	.97

Natural gas production constitutes the dependent variable in Model VII, and the following linear equation was imputed:

MODEL VII

$$X_7 = 642697 - 1550\,X_2 + 3796\,X_5 - 275\,X_8$$

Coefficient
T-ratios = 3.14 .60 .91 −2.40

TABLE 7
MODEL VII RELATIONSHIPS

r_2	r_{72}	r_{75}	r_{78}
.82	.55	.60	.85

Obviously, the statistical relationships have changed slightly since 1975, but the strong relationships and hence their predictive values remain as cogent in 1985 as in 1975.

CONCLUSIONS AND RECOMMENDATIONS

Based on the combination of prevailing literature in the energy field, and data contained in this paper, several recommendations appear to be in order. There is a continuing need for moderation on the part of both consumers and producers of energy. Utilization of the data in this study to generate simple forecasts of the various variables indicates that with the exception of agricultural use of gasoline, each variable is predicted to increase during the next four to ten years. Public policy makers should optimally continue to forecast aggregate annual state energy demand and corresponding consumption patterns. By carefully monitoring the several variables that affect energy consumption, public policy pronouncements dealing with such diverse subjects as increased insulation standards, design of transport rate structures to eliminate costly excess capacity, encouragement of governmental regulatory agencies to consider future energy demand and supply within the course of their deliberations, and so forth, can result in a more orderly socio-economic development in Arkansas. Given the current capacity problem in the electric kilowatt product segment, demand estimates probably should be extended to embrace the production-consumption areas of energy holding companies licensed in Arkansas.

A further recommendation concerns future energy developments, not just for Arkansas, but for the entire U.S. There is a wide variety of environmental laws and proposals currently under consideration. It is not clear what impact these complex proposals will have on the development of energy resources in the U.S. But, a systematic approach to appraising these proposals should be developed in the near future. Indeed, long-term planning based on measurements of all the various factors that influence or have an impact on energy supply and demand is requisite to dealing with the estimation and provision of future energy needs in Arkansas and in the U.S. In closing, the models employed in 1975 remain viable and predictive when employing 1975-1985 data, although some minor but not significant changes in some of the linear equations were revealed.

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[1] J. Dick and C.J. Mardin, "What is the Basis of Current Energy Forecasts," in *Energy and People*, Mark Diesendorf (ed.) (Forest Grove, Oregon: ISBS, Inc., 1979), p. 7. Grant M. Davis, "Energy Consumption Forecast for Arkansas," *Arkansas Business and Economic Review*, Vol. 8, No. 3 (Fall, 1975), pp. 1-9. Also, see Grant M. Davis and Phillip H. Taylor, "Impact of Fuel Shortages on Arkansas: A Preliminary Analysis," *Arkansas Business and Economic Review*, Vol. 6, No. 2 (May, 1973), pp. 28-35.

[2] Davis and Taylor, "Impact of Fuel Shortages on Arkansas."

[3] For an extended discussion of this viewpoint see Donald M. Kerr and Eric Willis, "R & D for Post-Crisis Energy Security," *Energy Exploration and Exploitation*, 3 (1985), pp. 127-137.

[4] ________, p. 129.

[5] John R. Miller, "Petroleum Economics and Management," *Journal of Energy and Development*, X:2 (Spring 1985), pp. 165-172.

[6] Davis, pp. 1-9.

ANNOUNCEMENT

The College of Business Administration, in order to make the research of its faculty more readily available, is pleased to advise continuation of its Working Paper Series through 1986. (See page 44, Vol. 18, No. 2, 1985, *Arkansas Business and Economic Review.*) Single copies of items in the Series will be provided without charge. Written requests for copies should be made by paper number and addressed to the Bureau of Business and Economic Research, College of Business Administration, University of Arkansas, Fayetteville, Arkansas 72701.

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SELECTED ARKANSAS AND U.S. ECONOMIC INDICATORS

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THE RECENT PERFORMANCE OF THE ARKANSAS ECONOMY

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Revisions in Personal Income data continue to make it difficult to assess the performance of the Arkansas economy. On a quarter-to-quarter basis, Personal Income remained virtually flat throughout 1986, with an annual growth of only 3.4 percent. However, the first estimate for the initial quarter of 1987 indicates an annualized growth rate in excess of 16 percent. Other current data and past experience simply do not substantiate such an acceleration in economic growth in the first three months of the year. Thus, one should look toward a downward revision in these numbers in the coming months.

Seasonally adjusted Labor Force data show growth of 31,500 from March to March, but the labor force actually declined during each of the first three months of 1987. Total employment (seasonally adjusted) has behaved in a similar manner. Agricultural employment has continued its steady decline on almost a month-to-month basis. Manufacturing wage and salary employment rose by only 1,300 jobs between March 1986 and March 1987. Finally, after dipping to the 8 percent level at the beginning of 1987, unemployment jumped sharply to 8.5 percent in March. The proportion of the labor force that is unemployed remains lower than what it was over much of 1986, however.

Value Added by Manufacture in Arkansas appears to have declined in the first quarter of 1987. The decline may well be a readjustment from the relatively high fourth quarter level but this indicator, like unemployment, presents a cause for caution.

If the data on Residential Construction in Arkansas are correct, this indicator dropped to its lowest point since the second quarter of 1982 during the first quarter of 1987. This would also indicate a continuation of the trend of generally declining residential building activity that has generally prevailed since early 1984.

Nonresidential Construction, seasonally adjusted, was up sharply from QIV, 1986 to QI, 1987. However, it was still below the average quarter for 1984, 1985 and 1986.

Neither Cash Receipts from Farm Marketings nor Waterborne Commerce on the Arkansas River show any particular reason for an optimistic analysis of the economy in early 1987. The latest available data on agriculture continue to show little improvement and river traffic was down at the outset of the year.

There seems to be no real basis for altering the earlier outlook offered for 1987 and 1988. Rising rates of inflation seem likely and it is beginning to appear that improvements in the dollar will be slow to provide any positive impact to the economy. Consequently, the Arkansas economy will probably continue to move upward very slowly over the next several quarters. There would seem to be an increased danger of recession but it is too early to predict such an occurrence at this juncture.

LABOR FORCE AND EMPLOYMENT
ARKANSAS

(Seasonally adjusted)

Year	Month	Civilian Labor Force (Units)	Total Employment (Units)	Agricultural Employment (Units)	Manufacturing Wage and Salary Employment (Units)	Unemployment Rate (Percent)
1980		999,000	923,000	65,100	210,050	7.7
1981		1,030,000	936,000	64,100	212,100	9.1
1982		1,018,000	919,000	63,440	195,625	9.8
1983		1,025,700	920,730	62,395	199,880	10.1
1984		1,044,000	951,000	61,600	209,750	8.9
1985*		1,051,180	960,100	46,250	210,317	8.6
1986		1,066,000	973,000	45,515	214,054	8.8
	April	1,046,741	960,435	46,293	213,010	8.2
	May	1,046,726	961,633	45,905	214,100	8.1
	June	1,057,931	964,198	45,596	212,852	9.2
	July	1,069,571	970,811	45,368	213,733	9.1
	Aug.	1,072,731	971,380	45,149	213,366	9.4
	Sept.	1,076,489	976,446	44,863	214,600	9.2
	Oct.	1,075,395	975,600	44,721	215,169	9.2
	Nov.	1,089,354	986,864	44,829	214,999	9.3
	Dec.	1,092,914	996,719	44,684	215,309	8.7
1987						
	Jan.	1,086,549	1,007,637	45,518	216,547	7.9
	Feb.	1,085,953	1,000,794	45,699	215,509	8.0
	Mar.	1,079,759	988,570	45,822	215,062	8.5

*Note: Labor Force and Employment data for the period 1985 forward have been reestimated by the Employment Security Division. The reestimation resulted in relatively large revisions in Agricultural Employment, with revisions to a less degree in Total Employment and Civilian Labor Force data. Consequently, the data for 1985 forward are not comparable to that for the prior period.

PERSONAL INCOME

Quarterly Changes in Personal Income, Arkansas and United States

(Seasonally adjusted, Percent)

	1985 Q-III thru 1985 Q-IV	1985 Q-IV thru 1986 Q-I	1986 Q-I thru 1986 Q-II	1986 Q-II thru 1986 Q-III	1986 Q-III thru 1986 Q-IV	1986 Q-IV thru 1987 Q-I
Arkansas	+ 1.9	+ 2.5	+ 3.0	− 0.9	+ 0.5	NA
United States	+ 1.8	+ 1.5	+ 1.5	+ 0.4	+ 0.8	+ 1.6

Personal Income in Arkansas

(Seasonally adjusted, annual rate, Millions of dollars)

	1980	1981	1982	1983	1984	1985	1986	1987
Quarter								
Jan-Mar	16,635	18,709	19,520	20,831	23,383	24,945	25,575[R]	26,549[P]
Apr-Jun	16,503	19,054	19,855	21,180	23,024	24,481	25,655[R]	
Jul-Sep	17,304	19,525	19,923	20,919	23,341	24,463	25,436[R]	
Oct-Dec	17,876	19,269	20,535	21,991	23,804	24,940	25,560[P]	
Annual	17,080	19,139	19,958	21,230	23,388	24,707	25,557	

[R] Revised

[P] Preliminary Estimate

INDUSTRIAL PRODUCTION

Quarterly Changes in Industrial Production Arkansas and United States

(Seasonally adjusted, Percent)

	1985 Q-IV thru 1986 Q-I	1986 Q-I thru 1986 Q-II	1986 Q-II thru 1986 Q-III	1986 Q-III thru 1986 Q-IV	1986 Q-IV thru 1987 Q-I
Arkansas	+ 1.1	+ 1.1	+ 1.4	+ 2.3	− 0.5
United States	− 0.1	− 0.5	+ 0.5	+ 0.8	+ 0.6

Value Added by Manufacture in Arkansas

(Seasonally adjusted, annual rate, Millions of dollars)

	1980	1981	1982	1983	1984	1985	1986	1987
Quarter								
Jan-Mar	6,553.6	7,167.6	7,474.8	7,884.9	8,830.1^{R}	9,294.4^{R}	9,557.1^{R}	9.966.6
Apr-Jun	6,415.0	7,388.1	7,569.1	8,131.9	8,958.7^{R}	9,285.9^{R}	9,657.9^{R}	
Jul-Sep	6,688.3	7,601.8	7,581.8	8,398.0	9,088.1^{R}	9,372.3^{R}	9,790.2^{R}	
Oct-Dec	6,942.7	7,589.5	7,746.9	8,522.0	9,180.4^{R}	9,453.5^{R}	10,013.0^{R}	
Annual	6,649.9	7,436.8	7,593.2	8,234.2	9,014.3^{R}	9,351.5^{R}	9,754.5^{R}	

^{R}Revised

CASH RECEIPTS FROM FARM MARKETINGS

Quarterly Changes in Cash Receipts, Arkansas and United States

(Seasonally adjusted, Percent)

	1985 Q-III thru 1985 Q-IV	1985 Q-IV thru 1986 Q-I	1986 Q-I thru 1986 Q-II	1986 Q-II thru 1986 Q-III	1986 Q-III thru 1986 Q-IV	1986 Q-IV thru 1987 Q-I
Arkansas	+ 8.3	– 12.8	– 4.2	+ 9.8	– 8.4	NA
United States	+ 11.7	– 17.9	+ 1.1	– 0.2	+ 12.6	– 14.7

Cash Receipts from Farm Marketings in Arkansas

(Seasonally adjusted, annual rate, Thousands of dollars)

	1979	1980	1981	1982	1983	1984	1985	1986
Quarter								
Jan-Mar	3,196,917^{R}	3,502,043^{R}	3,000,200^{R}	3,361,304^{R}	2,694,585^{R}	3,413,896^{R}	3,304,397^{R}	2,906,663^{R}
Apr-Jun	3,055,037^{R}	2,856,150^{R}	3,707,382^{R}	3,676,795^{R}	2,619,217^{R}	3,330,093^{R}	3,372,657^{R}	2,783,431^{R}
Jul-Sep	2,761,780^{R}	3,231,322^{R}	3,741,914^{R}	2,788,726^{R}	3,052,996^{R}	3,237,918^{R}	3,078,619^{R}	3,055,931^{R}
Oct-Dec	3,242,846^{R}	2,851,132^{R}	3,165,755^{R}	3,257,519^{R}	3,005,163^{R}	3,218,677^{R}	3,334,832^{R}	2,798,564
Annual	3,064,145^{R}	3,110,162^{R}	3,403,813^{R}	3,271,086^{R}	2,842,990^{R}	3,300,146^{R}	3,272,626^{R}	2,886,147

^{R}Revised

WATERBORNE COMMERCE:
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM

Quarterly Changes in Total and Internal Tonnages

(Seasonally adjusted, Percent)

	1985 Q-III thru 1985 Q-IV	1985 Q-IV thru 1986 Q-I	1986 Q-I thru 1986 Q-II	1986 Q-II thru 1986 Q-III	1986 Q-III thru 1986 Q-IV	1986 Q-IV thru 1987 Q-I
Total	– 20.9	+ 69.0	– 27.1	– 10.3	+ 0.3	– 9.2
Internal	– 18.0	+ 87.4	– 32.1	– 22.7	– 9.6	+ 29.9

Freight Traffic

(Seasonally adjusted, annual rate, Thousands of short tons)

Time		Traffic Tonnages			
Period		Inbound	Outbound	Internal	Total[1]
1979		2,026	3,456	2,932	8,926
1980		1,611	4,643	2,408	9,133
1981		1,564	5,684	1,741	9,446
1982		1,520	4,611	1,561	8,258
1983		1,918	3,905	1,904	8,017
1984		2,128	4,264	2,433	9,490
1985		2,103	3,191	2,521	8,335
1986		2,608	3,453	2,962	9,703
	Apr-Jun	2,369	2,917	3,233	9,319
	Jul-Sep	1,984	3,255	2,337	8,232
	Oct-Dec	2,997	2,804	2,226	8,553
1987					
	Jan-Mar	1,959	2,236	2,849	7,607

[1] Total tonnage includes "through traffic."

ARKANSAS CONSTRUCTION CONTRACTS

Residential Construction Contracts

(Seasonally adjusted, annual rate, Thousands of dollars)

	1980	1981	1982	1983	1984	1985	1986	1987
Quarter								
Jan-Mar	579,535[R]	717,596[R]	476,221[R]	832,231[R]	970,733[R]	772,571[R]	847,535[R]	658,206
Apr-Jun	570,914[R]	650,033[R]	603,819[R]	924,893[R]	975,386[R]	783,307[R]	659,716[R]	
Jul-Sep	701,817[R]	554,552[R]	700,002[R]	927,382[R]	923,195[R]	697,197[R]	751,803[R]	
Oct-Dec	711,993[R]	609,074[R]	812,219[R]	936,924[R]	804,441[R]	813,027[R]	715,082[R]	
Annual	641,064[R]	632,813[R]	648,065[R]	905,357[R]	918,439[R]	766,525[R]	743,534[R]	

Nonresidential Construction Contracts

(Seasonally adjusted, annual rate, Thousands of dollars)

	1980	1981	1982	1983	1984	1985	1986	1987
Quarter								
Jan-Mar	290,960[R]	361,233[R]	387,041[R]	283,678[R]	451,825[R]	373,672	454,492[R]	379,376
Apr-Jun	351,905[R]	279,976[R]	214,046[R]	369,556[R]	469,331[R]	449,010[R]	365,787[R]	
Jul-Sep	389,946[R]	253,467[R]	308,093[R]	367,211[R]	497,074[R]	438,687[R]	521,350[R]	
Oct-Dec	389,628[R]	306,559[R]	211,527[R]	444,594[R]	443,742[R]	554,682[R]	305,847[R]	
Annual	355,610[R]	300,309[R]	280,176[R]	366,260[R]	465,493[R]	454,012[R]	411,869[R]	

[R] Revised

ARKANSAS LABOR FORCE ESTIMATES
March 1987, Not Seasonally Adjusted

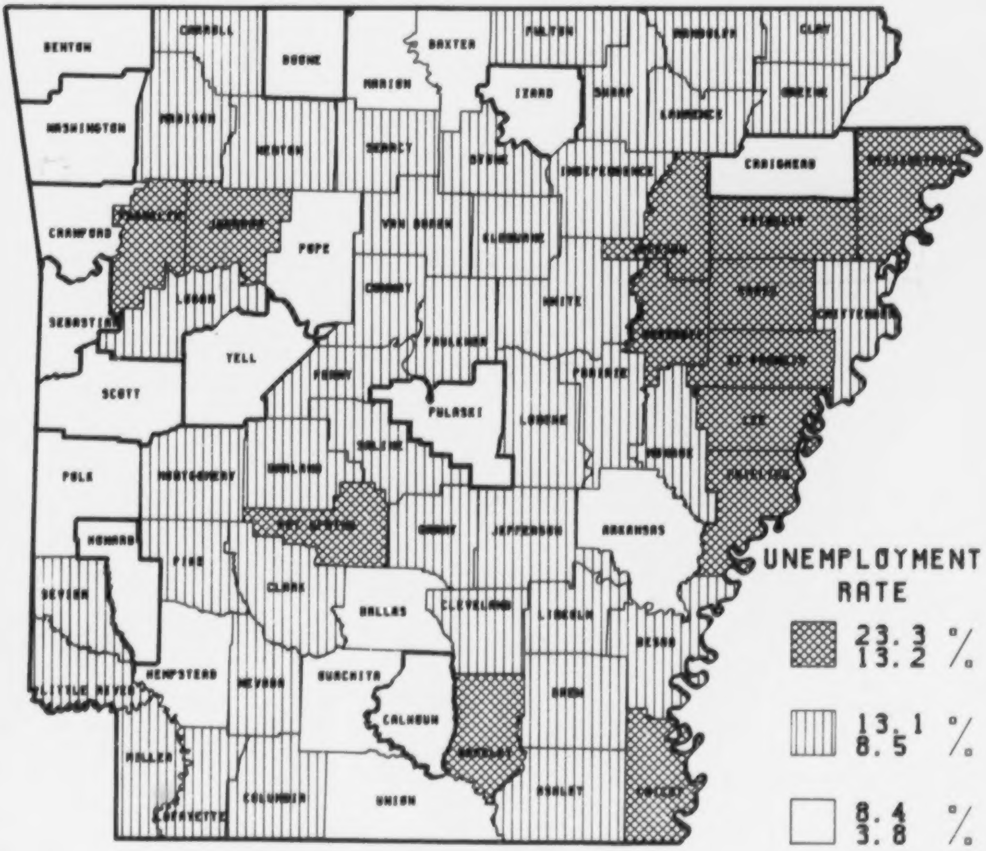
Area	Civilian Labor Force	Unemployment Rate	Total Employment
UNITED STATES	118,353,000	6.9	110,229,000
STATE OF ARKANSAS	1,068,100	9.1	970,900
Fayetteville-Springdale MSA	54,675	4.4	52,275
Fort Smith MSA	87,200	6.6	81,425
Little Rock-North Little Rock MSA	252,950	7.6	233,775
Pine Bluff MSA	36,300	10.5	32,475

County	Civilian Labor Force	Unemploy-ment Rate	Total Employ-ment	County	Civilian Labor Force	Unemploy-ment Rate	Total Employ-ment
Arkansas	10,375	7.5	9,600	Lee	4,650	22.0	3,625
Ashley	11,100	10.1	9,975	Lincoln	3,950	11.4	3,500
Baxter	11,125	7.9	10,250	Little River	5,300	10.8	4,725
Benton	45,175	4.4	45,175	Logan	8,925	10.6	7,975
Boone	14,100	6.2	13,225	Lonoke	16,625	9.2	15,100
Bradley	4,775	15.7	4,025	Madison	4,800	9.4	4,350
Calhoun	4,400	5.7	4,150	Marion	5,550	8.1	5,100
Carroll	9,900	9.6	8,950	Miller	17,725	10.3	15,900
Chicot	5,900	17.8	4,850	Mississippi	21,000	14.9	17,875
Clark	9,500	10.3	8,525	Monroe	4,925	11.7	4,350
Clay	8,025	12.8	7,000	Montgomery	2,725	11.0	2,425
Cleburne	7,625	10.5	6,825	Nevada	4,000	8.8	3,650
Cleveland	2,850	11.4	2,525	Newton	2,725	11.9	2,400
Columbia	12,000	9.4	10,875	Ouachita	12,825	8.2	11,775
Conway	7,650	10.8	6,825	Perry	4,000	13.1	3,475
Craighead	33,425	6.1	31,475	Phillips	10,175	16.7	8,475
Crawford	19,625	7.8	18,100	Pike	3,750	10.0	3,375
Crittenden	22,700	10.9	20,225	Poinsett	10,775	15.5	9,100
Cross	8,200	16.2	6,875	Polk	6,750	8.1	6,200
Dallas	4,350	7.5	4,025	Pope	22,800	7.1	21,175
Desha	6,975	11.5	6,175	Prairie	4,425	10.7	3,950
Drew	8,000	11.3	7,100	Pulaski	182,600	6.8	170,175
Faulkner	25,450	10.9	22,675	Randolph	7,075	12.4	6,200
Franklin	5,775	16.9	4,800	St. Francis	12,025	23.3	9,225
Fulton	3,550	11.3	3,150	Saline	28,275	8.7	25,825
Garland	32,650	8.8	29,775	Scott	5,900	3.8	5,675
Grant	5,825	10.3	5,225	Searcy	3,250	10.8	2,900
Greene	14,025	10.2	12,600	Sebastian	51,075	6.0	48,025
Hempstead	9,825	8.4	9,000	Sevier	6,375	9.0	5,800
Hot Spring	10,950	17.4	9,050	Sharp	5,350	8.9	4,875
Howard	5,850	6.8	5,450	Stone	3,725	11.4	3,300
Independence	14,975	10.4	13,425	Union	20,275	8.3	18,600
Izard	3,975	5.7	3,750	Van Buren	5,275	11.8	4,650
Jackson	8,625	17.1	7,150	Washington	54,675	4.4	52,275
Jefferson	36,300	10.5	32,475	White	24,050	11.9	21,200
Johnson	7,975	16.9	6,625	Woodruff	4,450	14.6	3,800
Lafayette	3,175	9.4	2,875	Yell	8,225	5.8	7,750
Lawrence	8,300	10.2	7,450				

Source: The Research and Statistics Section, Arkansas Employment Security Division.

LABOR FORCE ESTIMATES
MARCH 1987

IN MARCH, ARKANSAS' CIVILIAN LABOR FORCE INCREASED 3,400 TO TOTAL 1,068,100. TOTAL EMPLOYMENT INCREASED 5,100 TO TOTAL 970,900. EMPLOYMENT DECLINED 1,700 TO TOTAL 97,200. OF THE 75 COUNTIES, SCOTT HAD THE LOWEST UNMEPLOYMENT RATE AT 3.8 PERCENT AND ST. FRANCIS, THE HIGHEST AT 23.3 PERCENT. ALSO THE UNEMPLOYMENT RATES IN 26 COUNTIES WERE BELOW THE STATE RATE OF 9.1 PERCENT. IN THE MSAS, FAYETTEVILLE - SPRINGDALE HAD THE LOWEST UNEMPLOYMENT RATE AT 4.4 PERCENT AND PINE BLUFF HAD THE HIGHEST RATE AT 10.5 PERCENT. THE RATES FOR THE FORT SMITH AND THE LITTLE ROCK - NORTH LITTLE ROCK MSAS REACHED 6.6 AND 7.6 PERCENT, RESPECTIVELY.

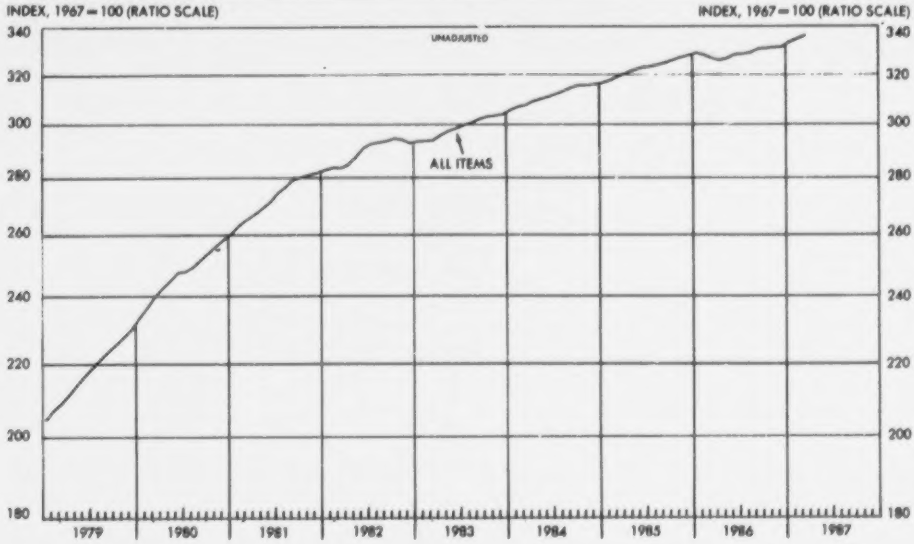

BENTON
CARROLL
BOONE
BAXTER
FULTON
RANDOLPH
CLAY
MARION
IZARD
SHARP
LAWRENCE
GREENE
WASHINGTON
MADISON
NEWTON
SEARCY
STONE
INDEPENDENCE
CRAIGHEAD
MISSISSIPPI
CRAWFORD
FRANKLIN
JOHNSON
POPE
VAN BUREN
CLEBURNE
JACKSON
POINSETT
SEBASTIAN
LOGAN
CONWAY
WHITE
CROSS
CRITTENDEN
YELL
FAULKNER
WOODRUFF
ST. FRANCIS
SCOTT
PERRY
PULASKI
PRAIRIE
LONOKE
LEE
POLK
MONTGOMERY
GARLAND
SALINE
MONROE
PHILLIPS
HOT SPRING
GRANT
JEFFERSON
ARKANSAS
HOWARD
PIKE
CLARK
SEVIER
DALLAS
CLEVELAND
LINCOLN
DESHA
HEMPSTEAD
NEVADA
OUACHITA
CALHOUN
DREW
LITTLE RIVER
MILLER
BRADLEY
ASHLEY
CHICOT
LAFAYETTE
COLUMBIA
UNION
UNEMPLOYMENT RATE
23.3 %
13.2 %
13.1 %
8.5 %
8.4 %
3.8 %

BOUNDARY LINES OF COUNTIES HAVING AN UNEMPLOYMENT RATE LESS THAN OR EQUAL TO THE NATIONAL AVERAGE OF 6.9 %

UNIVERSITY OF ARKANSAS COMPUTER GENERATED MAP

CONSUMER PRICES—ALL URBAN CONSUMERS

In March, the consumer price index for all urban consumers rose 0.4 percent, seasonally adjusted and not seasonally adjusted. The index was 3.0 percent above its year-earlier level.



SEE NOTE ON TABLE BELOW
SOURCE: DEPARTMENT OF LABOR

COUNCIL OF ECONOMIC ADVISERS

[1967 = 100, except as noted; monthly data seasonally adjusted, except as noted by NSA]

Period	All items [1] NSA	Food	Housing: Total [1]	Housing: Shelter: Total	Housing: Shelter: Renters' costs (Dec. 1982 = 100)	Housing: Shelter: Home-owners' costs (Dec. 1982 = 100)	Housing: Shelter: Maintenance and repairs NSA	Housing: Fuel and other utilities	Apparel and upkeep	Transportation: Total [1]	Transportation: New cars	Transportation: Motor fuel	Medical care	Energy [2]	All items less food, energy, and shelter
Rel. imp.[3]	*100.0*	*16.2*	*42.9*	*27.8*	*8.0*	*19.6*	*0.3*	*7.9*	*6.3*	*17.2*	*4.6*	*2.9*	*5.4*	*7.4*	*48.6*
1979	217.4	234.5	227.6	239.7	....	....	256.4	239.3	166.6	212.0	166.0	265.6	239.7	275.9	191.5
1980	246.8	254.6	263.3	281.7	....	....	285.7	278.6	178.4	249.7	179.3	369.1	265.9	361.1	208.3
1981	272.4	274.6	293.5	314.7	....	....	314.4	319.2	186.9	280.0	190.2	410.9	294.5	410.0	228.1
1982	289.1	285.7	314.7	337.0	....	....	334.1	350.8	191.8	291.5	197.6	389.4	328.7	416.1	245.6
1983	298.4	291.7	323.1	344.8	103.0	102.5	346.3	370.3	196.5	298.4	202.6	376.4	357.3	419.3	258.4
1984	311.1	302.9	336.5	361.7	108.6	107.3	359.2	387.3	200.2	311.7	208.5	370.7	379.5	423.6	271.2
1985	322.2	309.8	349.9	382.0	115.4	113.1	368.9	393.6	206.0	319.9	215.2	373.8	403.1	426.5	281.6
1986	328.4	319.7	360.2	402.9	121.9	119.4	373.8	384.7	207.8	307.5	224.4	292.1	433.5	370.3	291.2
1986: Mar	326.0	314.4	356.0	397.5	119.9	118.1	367.5	389.3	206.4	311.6	220.3	315.1	424.6	388.1	288.6
Apr	325.3	315.1	358.8	400.2	121.0	118.8	367.6	387.5	206.9	303.8	221.3	280.6	427.4	367.0	289.0
May	326.3	316.5	358.6	400.9	121.2	119.0	367.1	383.6	206.9	305.7	222.8	289.3	430.0	368.7	289.6
June	327.9	317.4	360.1	401.6	121.7	119.1	366.6	388.1	206.3	308.1	224.2	297.2	432.7	375.2	290.6
July	328.0	320.2	360.1	403.0	122.3	119.4	369.2	383.4	207.1	304.2	225.2	276.5	435.3	360.0	291.7
Aug	328.6	322.7	361.0	404.6	122.6	119.9	376.4	382.9	208.0	301.3	225.9	263.2	437.8	352.2	292.4
Sept	330.2	323.9	361.8	406.7	123.1	120.6	376.2	380.6	208.9	302.2	226.4	269.0	440.6	353.7	292.8
Oct	330.5	325.2	361.9	408.3	123.6	121.1	379.0	376.7	209.0	302.5	228.0	263.4	443.0	347.1	293.9
Nov	330.8	326.5	362.0	409.3	124.1	121.3	377.1	374.9	209.6	303.6	229.7	261.7	445.3	345.3	294.8
Dec	331.1	327.2	362.7	410.3	124.5	121.5	380.0	374.3	209.5	303.6	230.9	260.9	448.2	344.6	295.5
1987: Jan	333.1	328.6	364.4	412.2	125.4	122.0	382.1	375.9	210.4	308.3	231.8	278.0	450.2	354.9	297.0
Feb	334.4	329.6	365.8	414.3	126.0	122.6	381.9	377.1	211.8	309.8	229.3	289.5	451.7	361.5	297.4
Mar	335.9	329.2	367.2	416.5	126.7	123.2	383.4	377.6	215.4	311.8	229.4	296.2	453.7	365.2	298.8

[1] Includes items not shown separately.

[2] Fuel oil, coal, and bottled gas; gas (piped) and electricity; and motor fuel. Motor oil, coolant, etc. also included through 1982.

[3] Relative importance, December 1986.

NOTE.—Data beginning 1983 incorporate a rental equivalence measure for homeownership costs and therefore are not strictly comparable with figures for earlier periods.

Data beginning 1987 calculated on a revised basis.

Source: Department of Labor, Bureau of Labor Statistics.

REVIEW EDITORIAL POLICY STATEMENT

The Arkansas Business and Economic Review is dedicated to information relevant to the business and economic environment of Arkansas. Thus, the editor invites manuscripts in the following general subject areas for consideration for publication:

1. Problems and issues of the Arkansas business community and economy;
2. Regional and industrial problems that have implications for the Arkansas economic community;
3. National business and economic issues of general interest to the people of Arkansas;
4. Business and economic theory; and
5. Articles of interest to both practitioners and academics in business.

Each manuscript should be double-spaced and submitted in triplicate. The length of the article should not exceed 20 pages including tables, appendices and references. Each chart or table should be camera ready, that is, an original on a separate page. References are to be listed on a separate page at the end of the submitted article and are to be numbered sequentially in order of textual citation with a corresponding superscript at the point of reference. The listing will be used as "Endnotes" to the published article and should be in footnote format.

For example, as a minimum, each endnote item will indicate:

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